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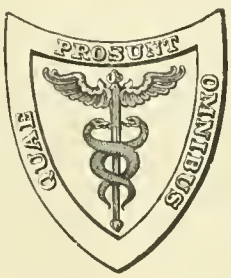

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ORIGINAL ARTICLES.

THE MANAGEMENT OF TYPHOID FEVER EPIDEMICS.*

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OF NEW YORK;

EXPERT FOR THE NEW YORK STATE DEPARTMENT OF HEALTH IN THE SUPPRESSION OF THE ITHACA EPIDEMIC OF 1903.

IT has been said that for every epidemic some person should be hanged. This, like many other epigrams, contains a germ of sense, but upon analysis is found to contain a misconception. If it were customary to hold public officers strictly responsible for their acts and health boards were as familiar with the principles and precepts of hygiene as they are generally supposed to be, there is no doubt but that some person or persons would be punished as a result of most of our typhoid fever epidemics.

As it is, however, we act very irrationally about the whole matter. We first attribute to health boards a knowledge which they should not be expected to possess and then excuse them from responsibilities which the law has clearly placed upon them.

It is well to consider how health boards are constituted. The boards of health of cities are usually appointed by the mayor and confirmed by the council. In villages the health board is commonly appointed by the village trustees, although the trustees themselves or the president and council of the village may act as a board of health. The local boards of health of towns are constituted in various ways: the township board, consisting of the supervisor, two justices of the peace and the town clerk, may constitute the health authority, or the board may be elected by popular ballot. The boards usually meet at regular but infrequent intervals to transact such business as is brought before them. The proper transaction of this business requires the exercise of much tact and discrimination in order that the action of the board may be, on the one hand, just and sufficient, and on the other, not so severe as to entail unnecessary hardship and expense, but a knowledge of public hygiene is seldom thought to be needed. It is customary for one of the members of the board to be a physician, but beyond this no scientific nor technical knowledge is required of the members. As a rule, there is no salary attached to the office, service being rendered voluntarily and without remuneration of any kind. Because sooner or later public duties and private interests are very apt to conflict, membership, although regarded as an honor by those who do not possess it, often comes to be looked upon by the members themselves as a thankless and unpleasant service.

The most remarkable power is everywhere given to local boards of health for the performance of their duties. The law requires the use of all possible care to prevent the spread of infectious diseases, and where there is a divided opinion as to the sufficiency of means for the protection of public health, the law is that the more effective measure is to be adopted. If the circumstances require, the board of health has authority to enter upon private property and remove and destroy, and not simply disinfect, articles of clothing, furniture and bedding which may be thought to be tainted with infectious material. Persons may even be seized and restrained from their liberty, private houses converted into hospitals, and many other things done which under ordinary circumstances would be considered a gross outrage upon the rights of persons and property. The safety of the people is the supreme law.

For an improper exercise of the large powers which are vested in local boards of health, severe penalties are provided. Health officers do not possess any special immunity from responsibility for wrongful acts, as, for example, the performance of duties in a grossly negligent, reckless or otherwise improper manner.

Such skill in sanitary science as is possessed by the board is usually represented by an employe. It is the duty of every local board of health to appoint a competent physician, not a member of the board, to be health officer and to act as the sanitary adviser and executive officer of the board. Among the duties which devolve upon the health officer may be named the following: to carry into effect the sanitary laws; to cause every case of infectious disease to be reported immediately and to transmit the same to the state department of health without delay, to keep the local board of health informed concerning dangerous diseases; to discover and remove preventable causes of disease, and to this end to direct, under the authority of the local board, an efficient system of sanitary inspection; to receive and examine into the nature of complaints concerning nuisances and causes of danger to the public health; to supply the local board with a knowledge which will enable them to make public, information which may be useful in the prevention of disease and the removal of injurious conditions.

Theoretically, the health officer directs the active work of the board of health. He should be skilled in sanitary science, and should be able at all times to give and apply an accurate knowledge as to the causation of infectious diseases and the most approved methods of eliminating them.

*Read at the Third Annual Conference of Health Officers of New York State, Albany, October 9, 1903.

The health officer should have special training in bacteriology, chemistry, pathology and sociology in order that he may be properly prepared for his duties. Since his position is one of great responsibility, he should be well paid. As a matter of fact, his salary is usually less than one dollar a day, excepting in the larger cities. It is no wonder that the best men are not always available. Yet good men are needed to prevent epidemics.

It is a misfortune, and, I think, somewhat of a reflection upon our universities and medical schools, that a scientific training in hygiene and sanitation can scarcely be acquired in this country. It is not so in Europe. In England, health officers are required to have a diploma testifying to their fitness for the duties to which they are appointed. On the continent, nearly every university of importance has its professor and department of hygiene, while in some countries there are whole institutions devoted to the study of the cause and prevention of disease. In America, we have no training school for health officers, we have no degree of doctor of public health, and, although our state demands a knowledge of hygiene before granting a physician a license to practice, there is scarcely a school of learning where such a knowledge may be obtained. So long as our educators remain blind to the need of disseminating a knowledge of this important subject, we cannot expect high standards of efficiency in our boards of health. If the responsibility for typhoid epidemics were pressed home as in the adage, I believe that the universities would, in many cases, occupy prominent places at the hanging.

But the title of the present paper indicates that our attention is not to be directed so much to the prevention of epidemics as to their suppression. What shall be done when an epidemic has arrived? The first thing is to know when a real epidemic is on. Usually a rumor that an infectious disease is spreading rapidly through a community is the first intimation of trouble. This is followed by denials from interested persons whose business is threatened by the public fear. Sooner or later the facts insist upon acknowledgment and it is confessed that an epidemic has broken out.

The pendulum then swings the other way. Exaggerated tales of the progress of the disease gain circulation. If the epidemic is not soon checked, symptoms of panic become observable. The number of cases is probably not accurately known. To the physicians the disease may be of an unknown, or practically unknown, character. Many epidemics of typhoid fever are not recognized in the beginning to be typhoid, because of the large variety of puzzling symptoms which this disease frequently presents. We have heard typhoid fever pronounced to be each of a score of other diseases, the majority of them hitherto unknown and unrecognized in medical practice.

In the first hours of uncertainty and dread which follow the outbreak of an epidemic, it is imperative that the health board act with wisdom and celerity. Nothing can do more good than to take prompt steps to determine the presence and nature of the disease. In the diagnosis of typhoid fever, reliance should never be placed upon clinical symptoms alone, where these seem to be uncertain in character or masked by symptoms which baffle the judgment. To be on the side of safety, it is desirable that all cases of continued fever not positively diagnosed, when prevalent in a community, be regarded as suspicious of typhoid, and the patient and his surroundings regulated in a way that will prevent the disease spreading if the provisional diagnosis is correct. It is important that these provisional diagnoses be promptly made and reported to the local board of health. On or after the seventh day, if doubt still exists, samples of blood should be taken to be tested by the Widal reaction. Microscopic slides, with full directions for their use, may be obtained from the headquarters of the State department of health at Albany. These slides can be had in any reasonable number. They will be examined free of charge by the State department and the results communicated to the local board of health upon request.

As practitioners at large are not in the habit of making use of this aid to the diagnosis of typhoid fever, a word should be said as to the interpretation of the Widal results. If the report of a specimen of blood sent to Albany indicates that the Widal reaction was positive, it is safe to conclude that the patient whose blood has been examined has typhoid fever or has had that disease within a recent period. If the report of the Widal test is negative, it is not to be inferred that the patient has not typhoid fever; it may be that the sample was taken before the blood assumed its typhoidal character. In the event of a negative report, it is desirable that another specimen of blood be taken for analysis. It is not to be forgotten that the blood will probably not react before the seventh day of the disease, and that it may persist for several weeks and months after apparent recovery. When utilized to the fullest extent, the Widal test can be of the utmost value at the outbreak of an epidemic of a disease which is suspected to be typhoid.

When an epidemic of typhoid fever has settled upon a community and it has become apparent that some more than ordinary measures of public safety are required, it will be desirable that the local board be strengthened to meet the emergency. The question arises at once, how this can be best accomplished. It may be that the board contains within itself sufficient initiative and executive ability to bring about such changes as may be necessary. When local boards can rise to the emergency of a typhoid epidemic without unnecessary sacrifice of time or money, there will be no need of obtaining outside assistance. In most cases, however, it is believed that boards of health, when confronted by epidemic conditions,

will desire to obtain help if prompt and capable assistance can be secured.

Fortunately, provision exists for the assistance of stricken communities in this emergency. The state department of health, which by law exercises supervision and authority over local boards, may be called upon for aid and for such advice as may be needed in order to control the epidemic. A desirable way by which the state department of health may furnish assistance to a local board is through an expert representative. The representative should be provided with ample power and authority by the state department, and should act under broad instructions to secure the introduction of such measures as are most suitable and appropriate, the fact being clearly kept in mind that an epidemic of typhoid fever in any locality is liable to spread to other communities. The status of the representative of the state department of health should be clearly defined. His duties should be considered as simply advisory so long as effective work can be carried on by the local board, in this manner. The existing law of New York permits the commissioner of health of the state to dissolve incompetent local boards, and to appoint health authorities to carry on the functions of the local board when thirty days have elapsed without a new board being appointed. It would be desirable if the state department could authorize the representative to take charge without so long a delay. If, however, the circumstances warranted it, there is little doubt but that an immediate assumption of the desired sanitary control would be upheld by the courts.

Except in the most extreme cases, it is distinctly preferable for the state's expert to consider his duties to be those of an observer and an adviser, taking account of all matters connected with the epidemic, and giving counsel and instruction and initiating sanitary measures in an amicable manner. The advice is pretty certain to be accepted as the surest means of relief at hand. It was in this way that the local board of health at Ithaca was supported to meet the severest epidemic that this state has known for many years.

The second step in suppressing an epidemic of typhoid fever lies, in my view, in determining accurately how many cases of sickness there are, where they are distributed and when they occurred. There is no more indispensable feature connected with the control of an epidemic than the collection and intelligent analysis of the vital statistics. Although the laws specify that physicians shall report their cases of infectious disease to the local board of health, many are not, under ordinary circumstances, in the habit of notifying their cases accurately or promptly. In times of epidemic it is imperative that the health authorities make a special effort to have reports sent in in the most accurate and punctual manner. There are many ways in which to obtain these reports from the physicians: the law, which is binding upon the physicians, may be enforced, or the local board may seek to obtain the co-operation of the physicians in a friendly spirit. The latter method is preferable, especially in small communities, but in larger cities, where public health work is generally carried on with less regard for personal relations, the prosecution of a delinquent physician may be the most practicable way to obtain the needful data from the rest.

The facts collected from the physicians' reports should be carefully digested. Maps on as large a scale as feasible should be used to plot the location of fever cases, and tables should be made to embody the results in chronological order, as well as by sections of the city, village or town.

Special care should be taken to detect the existence of mild, unusual and atypical cases, since an epidemic is not so likely to spread from the severe cases as from the mild ones. It should be remembered that all kinds of transmissible diseases which ordinarily escape detection by the family physician are the most dangerous to the public. It is not the patient who is sick in bed and under the control of doctors and nurses, but the one who is well enough to travel in street cars, attend church services and other public meetings and, in short, be about his business and pleasure in nearly his usual manner, who is most likely to spread disease. The State's expert should be prepared to visit and consult with the local physicians in the diagnoses of all suspected cases, and should take such independent measures to detect mild or aberrant forms of the epidemic disease as are in his judgment proper.

At the earliest practicable moment, the original cause of the epidemic should be looked for in order that it may be removed if it still exists. In most cases in which an epidemic has progressed to alarming proportions, the first cause will have disappeared and many local foci of disease taken its place. In this event, the difficulty of investigating the sources of disease germs is greatly increased. It is important that each center be detected and surrounded with such protective measures as will effectively prevent the further spread of the fever.

It is well for the local board of health to remember that in investigating and inspecting premises on which dangerous or injurious conditions are thought to exist, the jurisdiction of the local board must not be overstepped. The jurisdiction of local boards of health extends no farther than the limits of the corporations from which their authority is derived. The health officer of a city or village has no legal right, unless by special authorization, to enter upon premises located in a neighboring city or village, or upon property in a township, even though the township limits include the city or village from which he may derive his authority. If, as frequently occurs, a health officer desires to make inspections in the territory which supplies his corporation with drinking water, milk or other commodity, authority for such inspections

must be obtained from the municipal corporation concerned or from the state department of health.

As food supplies play such an important part in the spread of typhoid fever, it may be well to repeat that local boards of health may control the purity of these articles by regulations covering the quality of these products as they are offered for sale in the city.

As disinfection on a large scale will generally be required in a typhoid epidemic, it is desirable that the board of health prepare and distribute disinfectants of standard quality, without charge, to all houses where sickness exists. Analysis of many samples of proprietary disinfectants on the market shows that they are often too much adulterated to be depended on. An indiscriminate use of disinfectants should be discouraged. It is preferable that a great deal of attention be given to their proper application. The choice of disinfectants to be employed and the manner of using them are matters upon which the representative of the state department of health should be qualified to advise. Milk of lime, made by adding four parts of water to freshly slaked lime, and bichloride of mercury, prepared one to one thousand, are among the most suitable disinfectants to be employed. The milk of lime should be used for the disinfection of excreta and urine, and the bichloride of mercury for all other purposes. In all cases, the destruction of infectious material should be carried on as near its source as possible. If the disinfectants mentioned are properly used, fumigation will not be necessary. Where fumigation is indispensable, formaldehyde, used by sprinkling the 40-per-cent. solution of formalin on a bed sheet in the proportion of one quart to a thousand cubic feet of air space, is recommended. In general, it will be disadvantageous, in my opinion, to employ those chemical agents which are properly termed deodorants or counterodorants. The use of germicides which have a distinct odor is regarded unfavorably by me.

A recent contribution to our knowledge of the infectivity of typhoid fever is that the urine may contain enormous numbers of typhoid bacilli, and that the infection of the bladder, which is the cause of this condition, may remain after the patient has been discharged by his attending physician. The percentage of cases in which the urine becomes infected is probably small, but the danger of spreading the disease through this channel makes it important that it be recognized. For the disinfection of the bladder, the use of several drugs has been recommended. Urotropin, given in 10-grain doses three times per day for a week, has been found to be effective.

Along with the more scientific work of checking the epidemic will probably come a popular movement for a municipal house-cleaning. To encourage this can do no harm; indeed, it is desirable that the public should be requested to cooperate and assist the health work in all possible ways. It is partly for this reason that the investigation of complaints made by citizens should form a conspicuous feature of the work of the sanitary organization. It is even advisable that inspectors be delegated to various districts to inquire into the sanitary conditions before they are complained of. Responsibility rests upon the board for prompt and just action in the suppression of nuisances. It is their duty to ascertain when conditions answer to the definition of nuisances, as defined by the sanitary ordinances. But care should be taken here, as in other directions, that the authority of the board be not exceeded.

Inasmuch as the expenses of local boards of health are met in the same way as the expenses of the other divisions of the local government, unless otherwise especially provided for by law, the local board, in time of epidemic, will need to obtain funds for its work. The board should obtain authority for the expenses necessary to accomplish the business in view. Failing in this, they may proceed independently, and the obligations incurred in the event of the performance of necessary work for the protection of the public health at a time of great emergency will bind the city, village or town which is concerned. The expense of disinfecting private premises and of furnishing medical attendance and nurses is properly chargeable to the patient himself, unless he is confined involuntarily or is a pauper, in which event the expense is chargeable to the county or town.

But to catalogue all the duties of the health authorities in the management of a typhoid fever epidemic is beyond the range of the present paper. Such a treatment of the subject might well constitute a treatise of formidable length. Typhoid fever in a small village, extended township or large city is a disease which, when in epidemic form, will require very different treatment in detail in order to accomplish its suppression. Local circumstances will always exercise a governing influence in determining just what steps should be taken. The foregoing remarks, therefore, are not intended to be in any sense a program, but are rather given for such suggestions as they may contain and in order to show that local boards of health, when overwhelmed by the difficulties which attend the outbreak of a typhoid fever epidemic, may appropriately apply for assistance to the State department of health.

I am aware that in expressing an opinion favorable to what may be considered a state management of epidemics I am recommending a course which appears to be different from that ordinarily followed in this commonwealth. But the difference is more seeming than real. It has been the custom on occasions of severe epidemic for the state department of health to send a representative to investigate the cause of trouble and to recommend measures for the elimination of the cause. The visit of the expert has usually been brief, two or three days ordinarily being considered sufficient for his investigation. The suggestion that I make is that the state send a representative to remain long enough at the seat

of epidemic to insure the adoption of measures which will bring it under control, whether this takes three days or three months. This suggestion, if adopted, would be in reality a development of the established custom of the state department of health and embodies no new features except an increase in the duties of the representative of the state and a corresponding increase in his authority in order to meet the requirements of the situation.

ANOMALIES AND DIFFICULTIES OF DIAGNOSIS IN TYPHOID FEVER.

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ANOMALIES in the course of typhoid fever have ceased to surprise us. There are but few cases in which the critical eye fails to discover some anomaly. The difficulties of diagnosis, as a rule, end with the first seven or eight days of continuous symptoms. The type of the disease is likely to vary from year to year. There are some years of mild, others of severe and malignant types and still others in which are found all grades of severity. There is no acute infection which we meet in Central New York more *atypical* than that due to the *Bacillus typhosus*. Successive epidemics are likely to have some characteristic manifestations which cause them to differ from those of the previous years. The typical descriptions of Griesinger, Liebermeister, Lebert, Murchison and a score of other acute observers are not usually prototyped on this side of the Atlantic. Erratic, irregular and unique forms of the disease are interspersed with a majority of cases corresponding with the text-book résumé of our own splendid American authors.

In 1842 Bartlett in his work "On Typhoid and Typhus Fevers" despaired of our ability ever to be able to make an absolute diagnosis. He said, "Our diagnosis can never be founded here, as it is in many other instances, on a few positive physical signs. It must always be rational—not absolute. The evidence upon which our verdict is to be rendered is wholly circumstantial."

Murchison in his classic work says: "During the first week of the disease it may be impossible to make a positive diagnosis; but even then enteric fever may be suspected if there be pyrexia, with nocturnal exacerbations each night becoming more severe and especially if this be attended by diarrhea, enlarged spleen or epistaxis." Less than ten years ago if both the abdominal symptoms and the eruption were absent, the diagnosis of enteric fever was only reached by a "process of exclusion." It became necessary to compare symptoms with those of many other diseases with which typhoid was likely to be confounded and the majority of physicians clung to the Murchisonian rule that "a fever which persists beyond seven days and is unattended by cutaneous eruption, or by signs of local disease in the head, chest or elsewhere, is in all probability enteric fever, though there be no symptoms of intestinal lesions." This latter statement led to a decided advance in diagnosis and proved the clinical acumen and thoroughness of the author. Murchison adds "almost the only source of fallacy is latent tuberculosis." How eager would both Bartlett and Murchison have been to rewrite the chapter on the Diagnosis of Typhoid, if they had but lived to know of the conquests of bacteriology.

Yet the ever changing type of the disease; the irregularity of its invasion; the many foci from which the typho-toxin may overwhelm the victim, with the uncertainty of the life-history of the hardy disease-producing bacillus, the fact positively established, more important than the profession has yet appreciated, that typhoid infection need not spend its force in the intestinal tract, must of necessity obscure the clinical picture and were it not for the added knowledge gained by laboratory methods, we would still find ourselves unable to establish positive diagnoses in many of our cases until a period so late that these could as readily be made by the layman as by the scientist.

There is abundant proof that typhoid may recur in the same individual. The history of a previous typhoid ought never to preclude the consideration of a second attack. Our information may not always be accurate. On the other hand we must not forget that in some cases the blood of typhoids continues to show the characteristic reaction long after the acute disease. This may become decidedly misleading. In a Sister of Charity examined in St. Joseph's Hospital, in Syracuse, who was perfectly well, the characteristic reaction was present eighteen years after typhoid. The fact to be kept before our mental vision in considering this question is that the acquired immunity of typhoid is not of as long duration as is that of most other exanthemata and it is positive that this immunity does not protect during the entire life of the individual.

The study of the prodromal period of typhoid fever always interests us; it is replete with irregularities and has so many vagaries that with atypical symptoms during a few days following, we are puzzled and often much at sea. The invasion of the disease may cover a long period, during which there are vague symptoms none of which lead to more than a suspicion of approaching infectious disease. Indeed we have seen cases in which this prodromal period covered many weeks. Accurate thermometric measurements continued negative; the period was thoroughly afebrile; there were no localized abdominal symptoms; nothing but a feeling of ill health and malaise with occasional or continuous headache that foretold the approach of serious disease.

In another class of cases we are plunged at once from the prodromal period, which may not occupy more than two or three days, into the first week of the disease in which, without the characteristic rise of temperature, we have early

hyperpyrexia, delirium, with manifestations of profound involvement of the nervous system.

In still another class of cases the prodromal period is short; covers from three to four days and includes localized abdominal pains, often severe, slight diarrhea, temperature varies from 100° to 101½° F. and leads at once to a condition in which there are grave meningeal symptoms; the temperature rising from 104° to 106° F. per rectum, the pulse rarely above 100 and from this condition to a stage of hyperpyrexia, final increasing heart weakness, arterial tension below 100 mm., continual delirium, Widal reaction positive early, usually on the sixth day, increasing tympany, roseola on the seventh day; early incontinence of feces and of urine, which between the tenth and thirteenth days of the disease give way to constipation and retention of the urine. If the patient lives beyond the third week, the temperature is likely after that time to be almost normal; then during the next two weeks convalescence is satisfactory and uninterrupted. However, the majority of these cases do not rally from the profound nervous symptoms to which I have called your attention, but die without regaining consciousness, of cardiac asthenia between the fourteenth and seventeenth days of the disease.

Among the most malignant and anomalous cases are those—fortunately rare—of a foudroyant type. These are met in drunkards, those nervously reduced after prolonged worry and mental fatigue, in which there is practically no noticeable prodromal period but early high temperature and many symptoms of a rapidly fatal cerebrospinal meningitis. After the first forty-eight hours the arterial pressure falls below 100 mm.; the pulse is rapid; stupor is followed by coma in a few days, and the majority of these die before the tenth day. I have had occasion to autopsy a number of these cases and have found besides the usual typhoid lesions, marked cerebral congestions with in one abundant fluid in the ventricles of the brain. In all of these cases there were diagnostic features which aided materially. Among these we would emphasize the unusually tender and enlarged spleen, the great and early tympany, the copious diarrhea, with rectal and vesical incontinence, the hyperpyrexia, the absence of the Kernig symptom, the far-reaching evidence of profound sepsis and, finally, if the patient lived long enough, the positive Widal reaction.

I am reminded by several recent experiences connected with the Ithaca epidemic of cases in which the prodromal period is surprisingly short; the symptoms of the first week severe, the temperature reaching 104° F. During the first days of observation, the nervous symptoms are less profound than in the class of cases just described. The high temperature ends with the first week of continuous symptoms; the bowels become constipated and with a temperature during the two or three weeks following ranging from 101° to 103° F., most of the patients make a satisfactory recovery. With only a few days of high temperature, there is a fall of from one to two degrees in occasional cases and what appears to be a malignant typhoid becomes benign and leads to a favorable termination.

In connection with the study of the pulse it may be positively stated that in no other acute infection may there be such great disproportion between high fever and pulse rate. Uncomplicated cases show an average pulse not above 100. Typhoid may be considered a disease with low arterial pressure. We have recently made repeated observations of typhoids which have been admitted to St. Joseph's Hospital, Syracuse, and those seen in private practice, with the Riva Rocci instrument modified by Cook, and have satisfactorily demonstrated the truth of the statement that typhoid is a hypotensine disease.

Adult typhoid during the first week of continuous symptoms, shows the maximum blood pressure to be 130 to 140 mm. As the disease advances the pressure may fall to 100 mm. or even lower. In children the pressure is correspondingly lower. Thus a child aged twelve years, on the sixteenth day of the disease, during which the highest temperature had been 105.2° F. showed a blood pressure of 120 mm. At this time the temperature was 100.4° F., pulse 110 and respirations 25. A child of ten years, on the fifth day after admission, temperature 104.4° F., registered 134 mm. A young woman, aged sixteen years in the fifth week of the disease, during which the highest temperature had been 104.6° F., with normal temperature, respirations and pulse, showed blood pressure to be 135 mm. In children under six, the arterial pressure rarely registers above 100 mm. and usually lower.

Blood pressure study offers nothing of diagnostic value in typhoid; the only statement which we can positively make is that as the disease advances blood pressure falls, and at no time is it high without complications, usually abdominal.

In a correspondence which I have had with Dr. Briggs of the Johns Hopkins Hospital, who has made many interesting observations in connection with blood pressure, in typhoid and other diseases and to which I shall again refer in speaking of perforation, his observations and those made in the wards of his hospital agree fully with those which I have just mentioned.

During the first stage of the disease, the time when differential diagnosis is most needed the relative lowering and disproportion of the pulse and temperature is of greater value in diagnosis than is dicrotism. Dicrotism was present in the majority of our cases and is found oftener in typhoid than in other infections. A diagnosis ought never to be based upon the typhoid condition associated with dicrotism, for there are diseases in which the pulse continues dicrotic in which typhoid is simulated, dependent upon other than typhoid infection.

The association of a comparatively slow pulse, dicrotism, typhoid symptoms with enlarging spleen would naturally make us suspicious of ty-

phoid fever. In children with basilar meningitis, the pulse is rarely dicrotic, though slow and out of proportion to early high temperature, while the typhoid condition may be coexistent. In these cases the abdomen is retracted; there is constipation and usually with other characteristic symptoms the presence of the Kernig phenomenon. In the tuberculous form leucocytosis is absent, while those of pyemic origin, in which we are most likely to have typhoid simulated, there is a positive leucocytosis.

The large majority of our cases show but little variation in the leading symptoms, including characteristic behavior of the fever during the second and third weeks of continuous symptoms. Hemorrhages or perforation are always suspected when during these days we have a decided lowering of temperature.

Our temperature charts show a number of typhoids with decided and sudden drops to a normal and below without subsequent evidences of hemorrhage or perforation. In most of these cases we were unable from anything that transpired to explain this unexpected fall of the temperature.

In Central New York we are hearing less and less of gastric fever. Typhoids do occasionally begin with stomach and hepatic symptoms, then follows a so-called continuous fever with or without slight icterus, which soon shows the marks of a typhoid. In two of these cases we found typhoid cholecystitis which dragged a long and weary course. In none of these positive cases was the Widal agglutination delayed after the ninth day.

The close observer will note in the majority of cases during this prodromal period and the first days of the disease that the tongue is tremulous, this fibrillary twitching is characteristic and in doubtful cases with headache, slight enlargement of the spleen gurgling in the region of the ileocecal valve, has materially aided in strengthening a suspicion of typhoid before the Widal test became positive. I wish to accentuate the importance of this symptom, because I do not believe that sufficient attention has been given to it by the profession. This tremor is less marked in the typhoid condition associated with other infections.

In Central New York chills are the exception in uncomplicated typhoids. The diagnosis of typhoid must be surrendered if the patient has repeated chills. We have learned to exclude typhoid if with the chill there is leucocytosis and symptoms of infection. In cases where we have made the positive diagnosis of primary typhoid, secondary infection is usually present if chills persist. There are few cases in which repeated chilly sensations are absent; this symptom corresponds exactly with what the Germans speak of as "frösteln." We have no word in our language quite as descriptive of this symptom. Repeated chills with typhoid symptoms and even slight enlargement of the spleen during the early days of infection argue strongly against typhoid in favor of other infection. In connection with similar histories we have had very interesting experiences in some of which the diagnosis of typhoid had been made in which the leucocytic count and final physical examinations showed the presence either of endocarditis, malignant or benign, pus accumulation or some other form of grave infection. I shall later refer to the differential diagnosis of malignant endocarditis and typhoid. There are those who still believe that diarrhea and intestinal symptoms must be present before the diagnosis of typhoid is justified. During the prodromal period and the first week of the disease, we have often failed to find diarrhea.

In our study of 110 cases, diarrhea was present in 84 cases. Some of the anomalous cases have remained constipated throughout the entire course of the disease. The least valuable of all prodromal symptoms, formerly considered cardinal, is nosebleed. In the cases collected nosebleed was present in 49 cases. A small proportion of cases have had nosebleed late. This was occasionally an expression of a grave purpura.

The spleen gives valuable information, for in not a single case have we failed to detect its enlargement. I do not wish to convey the idea that we have been able to palpate this organ even in the majority of our cases. It seems to me that the American typhoid spleen is not as palpable as the German. Leube makes the statement that in 90 per cent. of his cases the enlargement is recognizable not only by percussion, but by palpation, if the examination is properly conducted. To this we cannot subscribe.

Our experience proves that young patients have larger spleens during typhoid than do adults and that the spleens of the latter if palpable at all are most likely to be so during the second week of the disease. It has been easier to palpate the spleen of children sick with the disease than young adults, for the proportionate enlargement of that organ is greater in infantile typhoid. I am aware of the fact that this has not been the experience of all observers, but a series of twenty cases of typhoid in children varying from ten months to ten years of age, closely observed, justify this statement.

In connection with the consideration of some of the anomalies of typhoid, we must mention the behaviors of the roseola. In but few of our cases have we failed to discover the eruption. In the 110 cases selected from hospital and private records which serve for the purpose of supplying the data for this paper, we failed to find the eruption in but 8 cases. In cases which have been observed, the appearance of the eruption was coincident with the seventh or eighth day of the disease. In some of our cases we have been forced to search diligently for the rose spots, so few being present and these at times in unusual locations. In a case observed before the days of the Widal test, in which there were many perplexing conditions, which masked the diag-

nosis, we finally found a single spot on the right wrist just before a copious intestinal hemorrhage.

In uncomplicated cases, we have never found the eruption hemorrhagic. Cases in which the diagnosis of typhoid fever had been made with ultimate hemorrhagic spots proved to be malignant endocarditis or some form of purpura either malignant or benign. Twice in our hospital experience we have had patients with enteric fever in whom we ultimately found *Roscola syphilitica,* coincident with the typhoid eruption; the typhoid infection having followed the syphilitic in from four to seven weeks, as near as could be estimated. Such experiences before the days of the agglutination test were puzzling.

In children, as well as in adults, scarlatiniform eruptions with typhoid have been noted, sometimes with throat symptoms, sometimes without. This may mask the diagnosis but with our present knowledge it would be possible even in the early stages of typhoid in similar cases and paratyphoids to reach definite conclusions from blood cultures, for the specific bacilli are present in the blood and can be easily demonstrated before the Widal agglutination. (Schottmüller, Rudiger.)

Hektoen emphasizes the value of this method of early diagnosis by the report of several cases; one in which typhoid was positively coincident with scarlet fever; two others in which there were suspicions of scarlet and typhoid in which the typhoid bacillus was readily demonstrated by culture experiment.

While the cultural method will readily confirm the presence of typhoid or paratyphoid, we will not quickly eliminate the diagnosis of associated scarlatina, a possible, though rare complication. The scarlatiniform eruption of typhoid will not ultimately desquamate and as De Costa demonstrated, it may persist or it may appear late, and return with relapses. It was present twice in twenty cases of children; in both it happened to be a late manifestation and followed the roseola.

In two per cent. of cases seen in private practice, I found the roseola eruption capped with a single vesicle at some time during its existence. Relapses have been, in the majority of cases, accompanied with recurring roseola.

In so-called ambulatory cases, the eruption has at times appeared after admission to the hospital (for most of these cases were hospital cases) or had been present before, or escaped detection. In none of our cases did we trace any relation between the number of rose spots and the severity of the disease.

There are but few cases of typhoid in which we fail to find some involvement of the sensorium, yet there are many which during the waking hours have the appearance of being absolutely clear mentally. A few anomalous but severe cases have remained comparatively clear during the febrile period to develop acute delirium later with mania and a long train of mental symptoms resembling the post-pyrexial mania of pneumonia. All of these have terminated favorably often after many anxious days.

In the series of cases under consideration there were two in which hemorrhages were severe and repeated before the end of the second week.

In December last I saw with Dr. Noyes, of New Berlin, a woman, aged forty-seven years, plethoric, who was thoroughly depleted by repeated severe hemorrhages before the eleventh day of continuous symptoms. The second case succumbed to an early profuse hemorrhage on the ninth day of continuous symptoms.

These cases may have been ambulatory for a longer or shorter period. Careful inquiry furnished no positive data. Cases in which there has been an unusually long period of indefinite symptoms, during which a feeling of ill health had not been considered of sufficient importance to claim the attention of the patient or physician, have occasionally been found with early hemorrhage and have shown great malignancy throughout the disease. The heart was weak from the beginning; the prognosis was unfavorably affected by early exsanguination. Two ambulatory cases came under observation moribund with perforation.

The diagnosis of abdominal conditions in typhoid is often exceedingly puzzling. No case of typhoid is so mild that perforation may not occur. There are no diagnostic means by which we can foretell the occurrence of perforation. There is no time after the beginning of ulceration until thorough cicatrization when in any case this may not occur without premonition. It is a positive fact that subjective and objective symptoms of perforation are not always associated with the rupture of an ulcer. All clinicians have been surprised by recovery of cases in which they had reason from the symptoms to suspect perforation. A localized peritonitis over a typhoid ulcer may exist before its perforation and may thus protect the free peritoneal cavity. A typhoid ulcer about to rupture may be covered by plastic material; the intestine may become adherent to a neighboring coil *without ultimate rupture* with symptoms of localized peritonitis only.

Griesinger many years ago, in his memorable article on typhoid fever made the following statement: "Evidently, in consequence of deep ulceration from within and sloughing, there frequently results, even before perforation, a localized inflammatory process, with adhesions of the inflamed patch to the neighboring intestinal coils. In such cases there is not at once perforation into the free peritoneal cavity. There is, however, a formation of circumscribed exudation, with or without suppuration, which may ultimately lead to a general peritonitis, though it may possibly remain circumscribed and gradually end in recovery. If there has been no adhesive process before the perforation, gas and intestinal contents escape into the free peritoneal cavity and general peritonitis immediately results."

In a paper read before this body "On the Perforation of Typhoid Ulcer with Adhesive and Protective Peritonitis," in 1892, the author re-

ported a case of perforation of a typhoid ulcer with adhesive and protective peritonitis in which the patient ultimately died of other intercurrent causes and in which a localized peritonitis with tumor simulated perforative appendicitis very closely. Post mortem showed adhesive localized peritonitis which served to protect the general peritoneum.

It will be difficult at times in some of these anomalous cases with perforation or with localized peritonitis early and tumor in the region of the appendix, to make a positive differential diagnosis. Prof. Fitz has collected 167 cases of perforated bowel in typhoid in which he found the appendix perforated in but five cases or a little less than three per cent. Murchison found this perforation only once in 39 cases. Morin found perforation of the appendix in 18.75 per cent. of typhoid perforations and Herschel in 14.3 per cent. It is difficult to reconcile the differences of the various writers. It would be easy to establish the existence of ulceration and perforation of the appendix with typhoid fever if it were frequent. The diagnosis becomes important in ambulatory cases in which patients come to the hospital with symptoms of perforation with tumor in the region of the appendix. In these cases a leucocytic count and the Widal test with a consideration of all that the case offers will not long leave us in doubt. An error of diagnosis would not prejudice the patient's chances for the aid of surgery would be invoked for either condition.

A number of years ago the elder Flint held that effacement of liver dulness was one of the most characteristic signs of perforation. It would be rather dangerous to accept this statement and base a positive diagnosis upon it. There are many cases of typhoid in which the abdomen is abnormally distended, with effacement of liver dulness in which there may or may not be evidences of localized peritonitis and yet perforation has not taken place. An unusually distended transverse colon may so modify the area of liver dulness in these cases as to cause tympany anteriorly over the area of normal liver dulness. On the other hand with perforation, adhesive inflammation, incapsulation, bands or from other causes, air may be held within a circumscribed area in the lower half of the abdomen without effacement of liver dulness. Careful examination of the abdomen will reveal the presence of the first source of error by placing the patient upon the left side and percussing in the axillary line on the right side over the liver from the eighth rib downward; the presence of free air in the peritoneal cavity showing itself by a disappearance of dulness in that line, while there would be a persistence of dulness if the anterior tympany had been caused by the distended transverse colon.

Mechanical irritation of the peritoneum during surgical operations causes a decided rise of systolic blood pressure; this can be established by means of the sphygmomanometer and is positive. Peritoneal inflammation either local or general from whatever cause, has the same effect on blood pressure during the early hours of its existence; a fact which proves of diagnostic value as the following shows:

Crile* reports: "In five cases diagnosed perforation, in which blood pressure determinations were made, four were verified either by operation or autopsy. The case not operated on was a typical one. The pressure rose from 116 mm. to 190 mm. during four hours. The second case, a lad of twelve years, was admitted to the Lakeside Hospital with general peritonitis. Blood pressure was 105; Widal reaction was positive. Immediate operation was performed and perforation found. Later the abdominal symptoms of peritonitis disappeared. The blood pressure fell to 80 mm. On the eighth day infection passed through the thinned wall of another ulcer, causing peritonitis; blood pressure then rose promptly from 84 mm. to 110 mm. In the third case, a patient in the ward at Lakeside, developed a slowly forming perforation, blood pressure rose from 116 mm. to 165 within two hours. The pulse in the meantime had but slightly increased. At operation a small perforation and diffuse peritonitis were found. The fourth case, that of a physician who entered Lakeside with general peritonitis, blood pressure was 165; no operation. Autopsy revealed perforation and diffuse peritonitis. The fifth case was one of typical perforation, blood pressure 208 mm. At operation perforation and diffuse peritonitis were found. The blood pressure in the perforation cases assumed the high level attending peritonitis from other causes."

Dr. Briggs,† of Johns Hopkins Hospital reported a similar experience in which the systolic blood pressure rose from 106 mm. to 144 mm., coincident with perforation proven by operation.

The results are suggestive and emphasize the importance of frequent daily observations of blood pressure in the course of typhoid fever that changes may be promptly noted and when considered with subjective symptoms and physical signs lead to an early recognition of localized peritoneal inflammation and intestinal perforation.

With repeated chills after typhoid and the persistence of fever, the involvement of the mesenteric glands in a process of suppuration must be kept in mind. Infections leading to prolonged typhoid sepsis may be continued by general pathologic changes or localized disease in one of many organs of the body with or without local symptoms. This is particularly true of typhoid infection of the bile passages and gall-bladder. Persistent jaundice in the course of typhoid must lead to repeated physical examination of the bile passages and gall-bladder for the purpose of detecting possible typhoid cholangitis or cholecys-

* Journal of the American Medical Association, 1902, page 1292.
† Boston Medical and Surgical Journal, Sept. 24, 1903, page 342.

titis. The differential diagnosis of nephrotyphoid and typhoid in which the albuminuria is due to a pre-existing chronic nephritis, without positive knowledge of previous disease, may be strengthened by the study of blood pressure. This fact we have recently demonstrated in a number of cases. There are at the present writing two cases of albuminuria associated with typhoid at St. Joseph's Hospital the one a pure nephrotyphoid, the other a typhoid with pre-existing chronic diffuse parenchymatous nephritis. The blood pressure in the latter has been uniformly high; at the height of the disease it registered 168 mm. The blood pressure chart shows no record below 140 mm., while in the nephrotyphoid the highest arterial pressure registered 130 and as the disease advanced, repeated tests showed the fall of the ordinary uncomplicated case.

Among the most difficult cases to differentiate are those of malignant endocarditis of the typhoid type which bear close resemblances to typhoid and paratyphoid infections. These are rarely diagnosticated during the early days of the disease, but are considered typhoid fever. This is also true of cases of malignant endocarditis in which there are no positive early physical signs of the disease. In the type of malignant endocarditis known as the chronic type, which may appear with acute typhoid symptoms, we have at least the previous history of endocarditis to guide us and are largely influenced by the mutability of physical signs and the associated secondary manifestations. The most difficult cases are those in which the primary infection is hidden in which typhoid symptoms develop and in which the endocardium may be plastered with vegetations before the valves are sufficiently changed to cause audible physical signs of endocardial involvement.

This statement is equally true of those cases of gonorrheal endocarditis, some of which have ended fatally in a few days or weeks with typhoid symptoms. There are cases of malignant endocarditis in which the typhoid condition has followed pyemic symptoms, bearing the closest subjective resemblances to typhoid fever. Profuse hemorrhage is unusual in malignant endocarditis. In connection with this subject one fact must always influence our diagnosis; it is the positive rarity of endocarditis as a complication of typhoid fever. The truth of this fact will be received without hesitation if the pathologic records of large hospitals and private practice are studied.

Considered collectively typhoid shows a surprisingly small number of permanent heart lesions during the acute febrile period or following. With evidences of endocarditis and the typhoid condition, we shall always feel justified in assuming that the disease is not typhoid fever. It is this knowledge which must serve as a fundamental principle in the differential diagnosis of these conditions.

In a paper "On the Resemblances of Endocarditis to Typhoid and Paratyphoid Infections," I made the following statements; which I repeat at this time, because clinical experience has repeatedly emphasized their truth. "In the presence of murmurs with infection, the presence of petechiæ, disturbed circulation, infarcts and leucocytosis, negative Widal, we may strongly suspect malignant endocarditis. To make the diagnosis positive ante mortem, we must have the presence of physical signs referable to the heart and these we have in the majority of our cases before death. The presence of embolic infarct is a valuable diagnostic fact; it means much. It matters not how few evidences of embolic infarct we have, if we have any, and these are associated with limited cardiac changes and the presence of few general symptoms, we are compelled to suspect the possibility of malignant endocarditis."

Transitory or even lasting paralyses in the history of acute general infections are exceptional, except in those processes associated with embolic detachment and consecutive tissue change. These are frequent in typhoid types of malignant endocarditis.

Chills are frequently present during the early days of malignant endocarditis. The pyemic type of this disease may suddenly assume typhoid characteristics. The involvement of the right heart out of all proportion to left sided disease, with typhoid symptoms always argues against typhoid and in favor of malignant endocarditis. Cases of chronic endocarditis previously recognized in which true typhoid infection is present show none of the changes so frequent in malignant endocarditis. Typhoid fever uncomplicated during the first week of its existence, is not associated with leucocytisis. Leucocytosis at this time with polymorphonuclear increase is always strong evidence of infection other than typhoid. The specific germ if found in blood culture experiments will often help us materially in recognizing not only the port of entry but will clinch the diagnosis as well. Repeated negative blood cultures make the presence of malignant endocarditis unlikely, while if the disease be typhoid or paratyphoid the cultural methods will give early positive results. The difference in the differential counts of the leucocytes in typhoid recently reported to the profession by Thayer and Higley respectively prove conclusively that we are not yet agreed on the morphological relations of these cells to each other in this disease. All observers are agreed however that in typhoid, the white blood count is not increased and that a positive leucocytosis associated with typhoid symptoms, argues strongly against typhoid fever. The spleen of typhoid is usually larger than is that of malignant endocarditis. It is clear then from the consideration of the differential diagnosis of the malignant types of endocarditis and typhoid that with repeated painstaking physical examinations, daily leucocytic blood counts, blood cultures and repeated Widal tests, the diagnosis

need not remain doubtful long, but can be accurately and positively made.

The diagnosis of infantile typhoid is rarely made positive during the early days of the disease. It is equally true that a large number of infantile typhoids remain unrecognized because of the failure of the physician to appreciate the fact that infants and children are oftener infected than was formerly supposed. Occasionally we find children attacked when the older members of the family have escaped.

The roseola may or may not be abundant. In twenty cases ranging from ten months to ten years it was positively present in 65 per cent. Occasional cases have presented large crops. A single rose spot was found in two of my cases. One case presented a scarlet eruption without final desquamation. Continued fever in a child without localized disease with enlarged spleen, must lead to the suspicion of typhoid.

We have met the remittent type of the disease to which Murchison called attention. Quinine formerly aided us in diagnosticating these cases; now the Widal test gives positive information before the eighth day, rarely later.

Experience justifies the statement of Murchison that idiopathic remittent fever in children is almost invariably enteric. Cases of infantile typhoid have rarely continued febrile beyond the third week. Intestinal symptoms have been frequent; nervous symptoms were present in the majority of cases.

The short course in children is undoubtedly due to the absence of extensive deposits in the submucous intestinal tissue and sloughing of the diseased patches in large masses as in adults. Fewer glands are involved. Generally speaking it may be assumed that the positive signs and blood conditions with characteristic reactions are as dependable as in adult life. Miliary tuberculosis, central pneumonia, sepsis, pyemia, meningitis, entercolitis, influenza and malarial poisoning can, as a rule, be differentiated in early as well as in adult life by careful attention to detail and the employment of such methods as are today used by every anxious and scientific observer; though occasionally owing to late reaction and other anomalous conditions there may be days of uncertainty.

Time does not allow the differentiation of each of the conditions suggested. I may be pardoned, however, for calling your attention to a few facts: Hurried respiration, with typhoid symptoms, and associated leucocytosis in children or adults, are opposed to the diagnosis of typhoid. Sudden, repeated, unexplained vomiting in children with a low continuous fever, a slow pulse, changed disposition, constipation with or without cerebral macule and absence of enlarged spleen, argue against typhoid, in favor of approaching tubercular meningitis.

A continued fever in a child or adult following an injury with or without chills and the typhoid condition must lead to thorough blood examination. If leucocytosis is present, whether the spleen is enlarged or not, typhoid fever may be excluded. Sepsis, pyemia or endocardial infection must be considered.

The Ehrlich diazo reaction is not of positive diagnostic value, though it is found in most typhoids. Its presence in diseases other than typhoids makes it of uncertain value. It arouses suspicion; can never confirm diagnosis, as do blood cultural methods and the Widal test.

It has been manifestly impossible, in the limited time at my disposal, to consider in detail more than a few of the anomalies and difficulties of diagnosis which, in practice, we are constantly facing. I have been content to limit myself to such conditions as have been found of greatest interest to the busy worker in the broad field of general medicine. If I have succeeded in demonstrating the diagnostic value of the association of modern scientific methods with accurate bedside observations, *without the surrender of a single clinical fact made positive by such study*, I shall feel that the object for which I have labored in this symposium has been accomplished.

MANAGEMENT AND TREATMENT OF TYPHOID FEVER.*

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THE consideration of the treatment of typhoid fever at the present time must seem to many of you like thrashing over old straw, so hackneyed is the theme. It is often of value to review our therapeutic beliefs and measures, and to see if they have kept pace with the advances in bacteriology and pathology; or whether, on the other hand, the old conception of the disease still dominates our treatment, and whether or not we have fallen into a routine method of treating our patients as soon as the diagnosis of typhoid fever is made.

I fear that in our treatment we too frequently lose sight of the fact that typhoid fever is a general infection with varying degrees of toxemia, and that the bowel lesion is not the prime factor, but only one of the pathological incidents of the disease, and may be entirely wanting.

Nursing.—It is necessary to insist on good nursing, for everyone concedes that more lives are saved by nursing than by any other part of the treatment, but we cannot always insist on the patient being taken to a hospital if the needed attention cannot be given at home.

For nursing to be efficient it must be skilled nursing and not that which can be given by the different members of the patient's family. Fortunately nearly every community is supplied with well-trained nurses. If the patient must be nursed at home by his family and friends, then it is our duty to see that it is not done by them indiscriminately according to the exigencies of

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the household work, but certain members should be assigned to this duty and the physician should insist that they be in attendance at regular hours and be relieved from all other household cares. If possible the room should have a sunny exposure and means for good ventilation. The bed should be protected against soiling, and if possible, the room should contain two beds, so that the mattress and coverings of one bed may be thoroughly aired and sunned each day. The covering of the patient should be light, and in private practice the physician should see that solicitous friends do not weigh the patient down with bed-clothes and so prevent as far as possible all heat dissipation.

There should be perfect cleanliness of the patient's person, especially the buttocks and genitals, for even in hospital wards one too frequently finds these parts imperfectly cleansed after defecation and urination, and it is necessary for the physician to inspect them personally to see that his orders are carried out.

While the dangerous nature of the stools is appreciated by all, the fact, that at certain stages of the disease the urine contains immense numbers of typhoid bacilli, is overlooked. Petruschky estimated the number of bacilli per cubic centimeter in three cases and found them 20,000, 5,000,000 and 172,000,000 respectively. There is greater danger of contamination of the food, etc. from the urine than from the feces.

Diet.—In the management of typhoid fever the diet presents the greatest problems, for, not only must we consider the food from the standpoint of its chemical composition, but also its influence on the local lesion and its remote effect, as well as whether it is suited to the individual case. Probably no part of the treatment of typhoid fever is considered by the majority of the profession so definitely settled as the question of food. In no other infectious disease is the diet so restricted and routine. In no other ulcerated condition of the bowels is there so great a fear as to the effect of the use of a variety of food and of adequate alimentation. This fear is largely theoretical and based upon the old conception of the nature of typhoid fever.

In no other disease do we disregard to the same extent dietetic principles and fail to adapt our food to the individual needs of the case, remaining blind to symptoms which are referable to too restricted diet, but which are usually ascribed to intestinal lesions or to giving other food than milk. The diet should be (*a*) liquid, (*b*) easily digested, (*c*) easily absorbed, (*d*) the unabsorbed portions or residue by the time it reaches the ileum should not contain any solid particles, (*e*) the food itself or its residue should not too readily undergo putrefactive or fermentative changes, (*f*) it should contain all the ingredients necessary in normal relative proportions, (*g*) it should be relished by the patient, or, at least, should not cause disgust or nausea.

Milk is considered the orthodox food, and one is considered a dietetic heretic, if, in typhoid fever, its all-sufficient power is questioned and any other suggested; nevertheless, it is necessary to consider whether milk meets, as we have been led to believe, all the requirements of an ideal and sufficient food in typhoid fever.

Although milk is taken as a liquid, as soon as it enters the stomach it is coagulated into masses of varying size and degrees of hardness. While these masses of curdled milk are readily broken up and digested in the normal stomach and small intestine, in typhoid fever, perfect disintegration of the masses occurs with difficulty, and as the feedings occur at short intervals there is not sufficient time for digestion to be completed; as a result the curds frequently reach the ileum in an irritating and dangerous condition. If anyone doubts this tendency he has only to inspect the stools of typhoid fever patients to see the frequency with which they contain hard masses. Physicians too rarely make it a routine practice to critically examine the stools to note the condition of digestion—frequently they do not even inquire concerning their nature, but are interested only in their number.

I can confirm the statement that under an exclusive milk diet of 60 to 70 ounces a day, the stools are larger and contain more undigested food than with a mixed liquid or semi-liquid diet containing the same amount of proteids, carbohydrates and fats. The modification of milk by dilution or by the addition of lime water lessens to a slight degree the above tendency. When milk is not perfectly digested it furnishes a good culture medium for the intestinal flora, with autointoxication from the products of putrefaction and fermentation.

In the treatment of other acute infectious diseases of the intestinal canal, experience has shown the necessity of withdrawing milk from the dietary for a longer or shorter time. In these diseases we recognize the fact that putrefactive and fermentative changes in the intestinal contents can increase the inflammatory condition of the bowels and cause systemic intoxication. In typhoid fever these secondary effects may be induced by the intestinal contents late in the disease, entirely independent of the histological changes caused by the typhoid bacillus.

Many patients cannot take milk at all as it causes epigastric heaviness, pain, pyrosis, eructation and abdominal distention (tympanites). In giving milk in other diseases the rule is to begin with a small amount and gradually increase until the patient's digestive apparatus becomes accustomed to it, so as to avoid the unpleasant symptoms mentioned. In typhoid fever, however, as soon as the diagnosis is made we immediately begin to feed entirely on milk, giving frequently during the first days as much as two or three quarts. It would be very instructive if every physician would experiment on himself and note the sensations following the taking of two or three pints of milk a day. The uncomfortable distention of the abdomen with its annoying and noisy accompaniment would soon impress upon

him the need of caution in giving to a patient with acute intestinal catarrh this amount of milk.

The most important requisite for a food in any exhausting disease, is that it should contain all the ingredients necessary for nutrition in normal relative proportions. In health a man needs 3,000 calories, which are supplied by 100 to 125 grams of proteids, 400 to 500 grams of carbohydrates, and 50 to 100 grams of fat; or, if estimated in relation to nitrogen and carbon, he should have proteids enough to give 17.5 grams of nitrogen and non-proteids sufficient to give 270 grams of carbon.

The ideal foodstuff should have the different ingredients in the following proportion: proteids 12, carbohydrates 50 and fats 5. In milk these proportions are: proteids 12, carbohydrates 20 and fat 18. The deficiency in carbohydrates and the relatively higher percentage of fat, causes milk to be inadequate for an adult when used alone.

On the basis that the diet should contain 110 grams of proteid to give 17.5 grams of nitrogen and non-proteids to give 270 grams of carbon, Munk has estimated that on an exclusive milk diet, six pints would be necessary to give the necessary proteids, and eight pints for the non-proteids, which is a greater quantity than most patients can take and digest.

If the milk given does not yield the necessary amount of nutritive material, then there will result a condition of partial starvation, in which the proteids of the body will be called on to make up the deficiency, and from this cause alone there will be a progressive loss of weight and strength.

In typhoid fever there is great proteid loss which cannot be equalized by the proteids of the diet although it may contain the 110 to 125 grams of proteid. It is important to shield the proteids of the body from the destructive process as far as possible, by the administration of carbohydrates and other energy-sustaining foods.

Recovery in all infectious diseases depends upon the resisting power of the patient. In typhoid fever, where we have no specific against the bacillus or its toxins, our only hope is to sustain the strength and nutrition and to preserve to the highest this power of resistance. If, during a long period of typhoid fever, the patient is kept on an insufficient diet, the resistance will be lowered and the bacilli will regain the ascendency so that we will have a recrudescence of the fever or a true relapse. I am thoroughly convinced that many of our cases of prolonged fever attended with marked physical exhaustion and cardiac weakness, are not due to the typhoid bacillus or its toxins alone, but to the lack, not of food, but of nourishment; for, under the exclusive milk diet of 60 to 70 ounces a day, our patients are overfed but undernourished.

The trouble is that as soon as we make the diagnosis of typhoid fever, we take counsel of our fears in relation to the diet and do not use the same therapeutic judgment as in other diseases. Since giving a diet richer in carbohydrates and albuminoids I have not seen the same weakness and emaciation following the first two weeks.

Professor Delafield has lately called attention to a condition named by him "post-typhoid sepsis" and characterized by fever and profound weakness which rapidly improves when the patient is given solid food and is also taken out of bed. A number of years ago my attention was called to these cases both in hospital and private practice, and while I have never been able to convince myself that the majority of them were due to a distinct sepsis, I have always considered that the symptoms were dependent upon a condition of partial starvation complicating an infectious disease of long duration.

Professor Wright and Lieutenant Knapp of the Army Medical School of Great Britain, have investigated the cause of thrombosis in typhoid fever, and have found that the coagulability of the blood is decreased during the early days of fever, but that it is increased beyond the normal during the later weeks and during convalescence. The increased coagulability they found was dependent upon an increase in the amount of lime salts in the blood, which increase is due to the calcium oxide derived from the cow's milk which contains one part in 600 as compared with one part in 800 in lime water. If this contention is true, then not only is an exclusive milk diet predisposing to thrombosis, but the liability thereto is still further increased by the use of lime water which is so commonly employed to dilute it. To overcome this tendency to an excess of calcium oxide in the blood, they suggest partial decalcification of cow's milk by adding citrate of soda (grains 20 to 40 to the pint).

The profession have, I think, adopted the rigid and restricted milk diet mainly because of its use in large hospitals. In institutions where great numbers of cases are treated, a routine diet is necessarily the best, as it guards against the giving of injurious articles by friends, and it is impossible to consider the individual likes and dislikes to the same extent as in private practice. In fact, the majority of our hospital patients do not have such fastidious tastes and such fickle digestive tracts as those in the higher walks of life; their usual diet is of necessity monotonous and variety in sickness is not so essential. But, even in these cases, I am positive that relapses would be less frequent, convalescence not so protracted, and the death-rate from complications lower, if a more varied diet were used. I do not mean that I would exclude milk from the dietary, nor do I advocate indiscriminate feeding. Indeed, one who uses a variety of food must exercise greater tact and judgment than when milk only is given, and unless he is willing and able to adapt the diet to the individual case and is also competent to give definite instructions for the making of the different preparations ordered, it will be safer for him to adhere to the exclusive milk diet.

I have one rigid rule in the giving of different foods, viz., that nothing is to be given to the pa-

tient during the early weeks of the fever that has not been or that cannot be passed through a fine wire sieve. In order to give variety to the diet and to supply the necessary nutritive elements the following preparations may be selected:

Drinks.—Pure water or mineral water from which the excess of CO_2 has been allowed to escape may be given ad libitum. It is not merely necessary that water be ordered, but care must be taken that it be given in large quantities. If possible the same type of water should be given as the patient is accustomed to, as frequently another type (hard, soft, etc.) will give the patient gastric distress and may cause diarrhea. To make the water more palatable it may be acidulated with dilute hydrochloric acid and occasionally with lemon or orange juice, or, a small amount of red or white wine may be added, although it is generally better to give it pure.

Milk.—Under the mixed diet it is rarely necessary or wise to give more than two pints a day, and the feedings should be separated by the giving of other foods. It is well to flavor the milk with coffee, cocoa or tea, or, if the patient has been accustomed to take either coffee or cocoa in the morning and desires it, it may be allowed. Putting milk in a shaker with a lump of ice and thoroughly aerating it makes it more palatable and digestible. Other milk products as koumiss, junket, etc., may be used to give variety. In order to increase the carbohydrate contents of the milk there may be added some stale bread which has been grated and passed through a fine sieve, or, instead of the bread, some of the farinaceous baby-foods.

Carbohydrates.—These may be given as mucilaginous soups made of oatmeal, rice, wheat, barley, tapioca or sago, either alone or mixed with bouillon. It has been claimed that the carbohydrates in the above forms tend to undergo fermentative changes in the intestines and that their digestion is especially difficult in typhoid fever. This objection is largely theoretical. Experience has proven that they are easily digested. When combined with milk and eggs, in the form of puddings, etc., they do cause flatulency.

Proteids.—Concentrated proteid nourishment must be given with great caution during the febrile stage. Usually that contained in the milk is sufficient. Egg when combined with milk is difficult of digestion. Egg-water, made according to the formula of Professor Osler (thoroughly shaken with ice, strained and flavored with lemon, sherry or brandy) may be given as a refreshing drink between the heartier articles of food. Yolk of egg stirred in bouillon or cereal soup should be given only after the fever has subsided and digestion has improved. The use of somatose, tropon, plasmon, etc., has been advocated, but personally I have had very little experience with their use in typhoid fever, as I prefer to give those preparations with which I am most familiar.

Gelatine.—The value of gelatine as an article of diet in typhoid fever has been underestimated. While it cannot replace the proteids it has the power to lessen nitrogenous waste and is more efficacious than either fats or carbohydrates in protecting the proteids of the body and so conserving both nutrition and energy. It is valuable for adding relish to the food with which it is combined and can be given as calf's foot jelly or by adding it to soup or broths. An especially grateful preparation is a cold jellied bouillon made by obtaining the gelatine from the bones and connective tissue of soup stock. I generally suggest that this be prepared from a shin bone of beef and a knuckle of veal. In addition to its value as a food product, gelatine is indicated in the later stages of the disease when there is danger or tendency to hemorrhage. Care must be taken, however, not to give it in excessive amounts as it has a tendency to increase the diarrhea and sometimes causes tympanites. When hemorrhage occurs and there is a rapid discharge of blood from the bowels, I have found that the use of a half ounce or an ounce of commercial gelatine dissolved in a pint of water and given in two to four ounce doses at frequent intervals, will very often have a marked effect in controlling the hemorrhage. I consider it more reliable than the use of ergot or the ordinary astringent preparations. In order to obtain the full nutritive value of the diet it is frequently necessary to supply the deficiency in the salivary, gastric and pancreatic secretions as well as the hydrochloric acid.

Cathartics.—The thorough removal of the undigested and unabsorbed residue from the intestinal canal is as important as the administration of food. In all other inflammatory and ulcerative diseases of the intestine this fact is well recognized and acted upon, but in typhoid fever the intestinal lesions presumed to be present have been considered a contraindication to the use of cathartics, and when certain cathartics have been given they have been used more as specific antiseptics or disinfectants than for the simple cathartic effect.

When there is ulceration of the ileum there is a tendency to retention of fecal matter above the site of the ulcers and there may be marked accumulation although the patient is having frequent small diarrheal discharges. This tendency to acumulation is increased by paralysis of the gut, with or without peritoneal involvement. I cannot insist too strongly upon the importance of thorough emptying of the intestines, as it is a frequent experience in both hospital and consultation practice to see patients with persistent diarrhea, tympanites, high temperature and profound toxemia, due to large fecal accumulations of partially digested food. These accumulations may occur although the routine daily enema has been given, but more frequently it has been omitted on account of the diarrhea.

The requisites of a cathartic for typhoid fever are (*a*) that it should thoroughly cleanse the small and large intestine, (*b*) that it should not cause markedly increased peristalsis or griping

(*c*) that it should not derange the digestion, and (*d*) that it should not produce any effect beyond that of a simple cathartic action. Only two classes of cathartics meet these requirements (*a*) the salines and (*b*) castor oil (in infants, sweet oil). Among the salines there is a wide range for selection, the phosphate of soda and the sulphate of magnesia being those most generally used, or, where the patient has been accustomed to use one of the saline aperient waters, this may be given, as the necessary dose is more readily determined.

My preference is for small doses of castor oil, just sufficient to cause one or two soft movements a day. I usually administer it in elastic capsules giving one or two drams at night and also in the morning if needed. If there is a tendency to griping the addition of three to five drops of chloroform to the capsules usually prevents it. When an intestinal disinfectant is needed five grains of salol may be added to each capsule. The form of cathartic and the dose should be that best suited to the individual case. It should be given throughout the disease for cleansing purposes only.

Intestinal Antiseptics.—Before the specific cause of typhoid fever was known, various forms of treatment, based on the intestinal lesions and considered more or less specific, were advocated. The two most important plans were the eliminative, by the use of purgative medicines, etc., and the antiseptic or germicidal, and frequently these two were combined in one as by the use of calomel.

Nearly every drug with antiseptic or germicidal action has at some time been used as a specific against the supposed infectious condition in the intestine. If, in addition to its antiseptic properties, the drug was also antipyretic, its advocates were the more numerous. After a more or less ephemeral reputation, most of these drugs have fallen into disuse. Those which have had a more lasting use are salol, bismuth, the salicylates and beta-naphthol.

Although typhoid fever is a bacillemia and it is futile to attempt to combat the disease by the use of intestinal antiseptics, still, changes in the intestinal contents and bacteria and secondary changes in the intestine itself may call for specific antiseptic treatment. Putrefaction or fermentation of the intestinal contents may induce inflammatory changes in the bowels, or, through systemic intoxication, cause an increased susceptibility to reinfection by the typhoid bacillus, giving a recrudescence or relapse. Alessi, in the Hygienic Institute at Rome, found that rabbits, guinea-pigs and rats lost their natural immunity to typhoid fever when poisoned by an atmosphere vitiated by emanations from a privy-vault or collections of their own excreta.

When systemic intoxication occurs through absorption from the intestine, the susceptibility of the patient to reinfection is greatly increased and many cases of relapse have been traced to this cause. In combating putrefactive changes, personally I prefer salol, either given alone or dissolved in castor oil as mentioned above. If salol is not tolerated then the salicylate of bismuth (5 to 10 grains) may be used. Recently a new intestinal antiseptic, acetozone (benzoyl-acetyl-peroxide) had appeared and even specific action is claimed for it. When administered during the entire cause of the fever it is claimed (*a*) that the length of the disease is lessened, (*b*) the stools and also hospital wards that contain a large number of typhoid fever patients lose their characteristic odor, (*c*) diarrhea and tympanites are checked, (*d*) stupor and delirium are very much less, (*e*) the temperature runs a lower course and hyperpyrexia but rarely occurs. It is said that relapses are infrequent when its use is continued until convalescence is established, also that it does not affect deleteriously the heart, lungs or kidneys. Whether these claims will be substantiated, time alone will tell. Personal use in a limited number of cases who could take the drug in the quantities and for the length of time advised has not given such encouraging results.

With attention to the diet and with thorough cleansing of the bowels the use of the different intestinal antiseptics has less place in typhoid therapy than heretofore.

Management of the Temperature.—The control of the temperature has always been considered one of the prime objects in the treatment of typhoid fever. The fact is often lost sight of that it is not the degree of fever that should guide us in the administration of antipyretic treatment, but rather the associated symptoms showing the action of the toxins on the nervous system and metabolism, *i.e.*, stupor, delirium, cardiac, respiratory and gastro-intestinal disturbance, emaciation and especially the condition of the urine. Any treatment that merely reduces the temperature but does not improve these associated conditions is useless or harmful.

Hydrotherapy is the method most commonly used to reduce the temperature and by many it is considered the only means that is justiable. In hospitals and frequently in private practice, antipyretic baths are ordered whenever the temperature rises above 102.5° F.

It is unnecessary to describe the different varieties of baths and their administration. It is only necessary to call attention to the fact that their use is twofold—first the extraction of heat, and second the toning up of the nervous system. In order to obtain the first-mentioned effect it is necessary for the surface circulation to be active. If cold is applied and there is no reaction of the surface circulation there will be diminished heat elimination through the contraction of the capillaries and also increased metabolism. It is therefore necessary, by brisk rubbing, to ensure an active capillary circulation. When this is obtained then the full tub-bath, the mitten bath, the bed bath, etc. will give satisfactory results according to the individual susceptibility of the patient and the degree of fever.

The routine practice of tubbing the patient

whenever the temperature reaches 102° to 103° F. is rapidly falling into disuse and the need of rest and of conserving the energy of the patient is being more and more considered in relation to the bath treatment. Rarely is it necessary to give a patient more than three, or at most four or five baths a day. The individual susceptibility should always be tested by having the first bath at a temperature of about 90°. In many cases where the cold bath of 70° to 75° F. causes profound shock, better results can be obtained by the warm bath, which, according to the plan of Liebermeister, may be gradually cooled.

At the present time the use of the coal-tar antipyretics and quinine is deprecated by most authors in the treatment of typhoid fever. The antagonism to these antipyretic drugs is largely the result of excessive use when the antipyrine group was first introduced into medicine. When given in large doses so as to depress the temperature to normal or below, they undoubtedly do great harm, but when combined with the bath treatment they have the power of controlling the temperature and at the same time improving the general condition of the patient. Phenacetine given in small doses does not cause dangerous depression of the heart, but on the other hand has the power to reduce temperature through its action upon the heat-regulating nervous mechanism so that the point at which the temperature is maintained is a lower one. The drug counteracts the effect of the toxins on the heat-regulating apparatus, and as a result, of even the temporary lowering of the temperature the proteid waste is limited and nutrition conserved. Acetanilid is preferred by many to phenacetin but on account of its tendency to cause cyanosis in some individuals it should be used with caution, unless the patient's tolerance is known.

Quinine has always held its reputation among clinicians as an antipyretic. Recent investigations have shown that its action is not upon the heat-regulating apparatus, as is the case in the coal-tar series, but rather that it has the distinct power of controlling nitrogenous metabolism, so that the old name of "fever food" is still applicable to the drug. When given for its antipyretic effect the full dose (15 grains) should be given at once, or 5-grain doses repeated every fifteen minutes until the full dose is taken. The heroic doses of 30 to 40 grains are rarely necessary or justifiable, although at times cases do occur in which this amount must be given in order to positively control the temperature. After the initial dose of fifteen grains has been given the antipyretic action may be continued by giving 5-grain doses at three or four hour intervals. Quinine is especially indicated as an antipyretic in the so-called cases of posttyphoidal sepsis, where the temperature is due, not so much to the acute typhoid infection as to a septic infection from the ulcerated intestinal wall.

Cardiac Stimulants.—Progressive cardiac weakness is one of the most alarming features of typhoid fever. Early in the disease physical examination shows increase in the area of cardiac dulness, the apex beat becomes indistinct, there is diminution in the intensity of the first sound with relative accentuation of the aortic second sound and absolute accentuation of the pulmonic second sound. These evidences of myocardial weakness usually increase in intensity up to the third week, or, if convalescence is delayed, may go beyond this and be the determining cause of death. Although myocardial weakness is present the pulse is usually slower than in other febrile conditions and the pulse curve will not be found to run parallel with that of the temperature.

The changes in the myocardium and in the pulse during the early stage of the disease are undoubtedly due to the specific action of a toxin on the nervo-muscular mechanism of the circulatory system. In addition to these cardiac changes we frequently meet instances of sudden collapse designated by the term "acute cardiac failure." Romberg has lately shown that in other infectious diseases than typhoid fever this acute cardiac weakness is due to the effect of a toxin upon the vasomotor system.

The conservation of cardiac energy has always been one of the most important objects in the treatment. During the early period of the disease our efforts are directed to the free elimination of the toxins and the fortification of the nervous system against their action. The free elimination of the toxins is best secured through the kidneys by giving the necessary quantity of pure water. When the function of the kidneys is impaired the use of diuretin or agurin not only increases their eliminative power, but at the same time acts as a cardiac and cerebral stimulant.

Against the action of the toxin on the heart and nervous system, two agents have been especially advocated, viz., strychnine and alcohol. At the present time strychnine is the more commonly used and I cannot too strongly dissent from the present plan of giving strychnine in heroic doses as soon as typhoid fever is diagnosed. It is not unusual to find, both in hospital and private practice, patients who have gone through the first week or ten days of typhoid fever so freely drugged with strychnine that their reflexes are exaggerated. In these cases much of the restlessness and distress, supposed to be due to the disease, is actually caused by medication. Patients who are early stimulated to the full physiological limit by strychnine make a slower convalescence and are more prone to vasomotor disturbance and nervous depression during this stage. Strychnine should be reserved until the condition of the reflexes, both cardiac and spinal, show that the disease has begun to affect nervous centers and its dose should then be regulated so as just to meet the indications.

Among older clinicians alcohol has always been considered a sheet-anchor in the treatment of this disease, but in recent years its value as a cardiac stimulant has been doubted and pharmaco-

logical experiments and data have been brought forward to strengthen this contention.

Although alcohol in the animal and in the healthy individual may show no action upon the circulatory system beyond a reflex one, still in diseased conditions, especially the infectious fevers, it has a different action. We are all familiar with the fact that large doses can be given to a febrile case without symptoms of intoxication being induced or the odor of alcohol appearing on the breath, and that under its use the nervous system is quieted and cardiac action slowed, while the respirations are fuller and deeper. Whether in health alcohol acts as a food, is not germain to this discussion—certainly in typhoid fever alcohol acts both as a stimulant and a food, and when the diet is deficient, as when a milk diet alone is given, nutrition is improved and emaciation retarded.

I do not advise the giving of large quantities of alcohol throughout the entire course of the disease, but where the patient is steadily wasting and where there is evidence of progressive cardiac weakness, alcohol should be used to combat this condition. If the beneficial effects are obtained with a few initial doses its use should be continued; if, on the other hand, the patient becomes more restless and the pulse quicker, then its use is contraindicated. In young persons especially its early effects should be watched.

Another drug that is abused in the treatment of this disease is nitroglycerin. Frequently in acute collapse, or when cardiac weakness has reached the point of causing the pulse to become dicrotic, this drug is given at frequent intervals with the idea of diminishing the work of the heart. In acute cardiac collapse Romberg has shown that there is already vasomotor paralysis and that the failure is more vascular than cardiac and nitroglycerin cannot under these circumstances relieve the condition. In the later stages of the disease when the pulse is dicrotic, the dicrotism is due to the relaxed condition of the arteries, and the giving of nitroglycerin does not relieve the heart, but, on the other hand, destroys the normal control of the circulatory system. Nitroglycerin should only be given when arterial tension is relatively too high for the cardiac power and then only to carry the patient over the immediate danger. It is not a drug that should be given continuously for any length of time.

I have already exceeded the time allotted for this portion of the symposium, and it is impossible to consider in the limit set for this paper the treatment of all the conditions and complications that may arise during the course of typhoid fever. I have tried merely to emphasize that the treatment of typhoid fever, whether dietetic, medicinal or hydrotherapic, is apt to be too routine and to show too little individualization. Many fail to meet the most positive therapeutic indications because the case is one of typhoid fever and they fear to depart from the orthodox methods of treatment. There should be no hard and fast treatment of typhoid fever. The therapeutic problems presented by each case should be met with the same medical judgment that is used in the treatment of other diseases.

THOUGHTS ON CHLORINE AND AN ANTISEPTIC TECHNIC.*

BY DOUGLAS H. STEWART, M.D.,
OF NEW YORK.

THE preparation of this simple preliminary paper has been most difficult. A bacteriologist, an obstetrician and three surgeons have asked me to meet the following tests:

First.—It makes no impression if you never get a culture from your hands. Show me what you can do with anthrax.

Second.—Results with anthrax are valueless. Few surgeons have met it, none have contaminated wounds with it, and only hand results appeal to us.

Third.—Do not give us any results with any chemical. The profession has gone chemically mad.

Fourth.—Your technic does not make the hands dry enough.

Fifth.—It makes the hands too dry.

These opinions, given by men of reputation, ensure failure for the writer unless all that he says is verified by many observers. Let us consider one germicide, chlorine; one standard, 1-1,000 bichloride: one test germ, anthrax, and one medium, nutrient agar. Cultures spoken of as positive have grown, as negative have not grown. Many men have found that fresh aq. chlori. (.4 per cent.) would destroy anthrax in a day. Geppert says anthrax spores may be active after an immersion of twenty-five hours in 1-100 bichloride. I have taken twenty-five successive positives after a ten-minute exposure to 1-1,000 bichloride. After one-per-cent. lysol I have never failed to obtain positives, yet this soap is a powerful antizymotic and arrested the action of yeast and pepsin. One technic, glycerin and calx chlorate, fizzed but did not explode possibly because the hands were plunged instantly into cold water. Contact was not over fifteen to twenty seconds but it blistered badly wherever it touched my skin.

The two best known chlorine solutions are the liq. sod. chlorat. of Labarraque and the liq. pot. chlorat. of Javelle (Javelle is a mill, not a man, by the way). Though the formulæ are quite different, it is doubtful if a druggist in our city is not selling both under a Javelle label.

By omitting water from the Labarraque we obtain the well-known technic of washing soda and calx. This with anthrax gave six positives out of six trials. It worked well against molds, gave quite as good results and did not attack the hands so much when one third (by weight) of the carbonat. potas. was substituted for the carbonat. sodæ. By modification this became calx, table

* Read before the West End Medical Society, Nov. 7, 1903.

salt, carbonat. potas. and aq. ammonia—one teaspoonful of the salts and four of the aq. It is irritating in proportion to the temperature of the quart of water in which it is dissolved.

During experimentation Javelle water was changed to one teaspoonful of sulphuric acid, of calx and of table salt. Ultimately this solution was divided into two of a pint each with the acid and lime in different basins. Just here several physicians expressed fears of the portability of the vitriol. Therefore another chlorine technic was worked out with acetic acid.

After testing many soaps the ordinary brown laundry variety seemed always sterile, but sterility of the hands from the use of any soap I have never seen. If green soap is ever sterile, then I have been unfortunate in my specimens, since every trial has given positives. Anthrax and molds grow in it.

Should you wish to eliminate soap from your present technic the following suggestion may be of some value. Take a heaping teaspoonful of calc. chlorat., of table salt and of aq. ammoniæ, mix them in a quart of cool water, bleach and cleanse your hands therein and they will often be sterile. Give special attention to the nails with powdered pumice, stick and brush. If you cannot make them macroscopically clean put chlorinated lime under them and around their margins.

Do not put the calx on the sensitive skin. When properly performed, you should not get more than two positives out of twelve attempts, although this washing is merely preparatory. One doctor, after a long railway journey gave one single spot in a Petri dish out of twelve trials. Several others have done as well.

At the Polyclinic Hospital the following method has been in use for the past fortnight: five minutes mechanical—pumice, brush, hot water, green soap and wooden nail cleaners. Five minutes chemical.—Two heaping teaspoonfuls of fresh calx chlorat. and one teaspoonful of U. S. P. acetic acid to the pint of sterile water. The germicidal power of this mixture fully equals 1-1,000 bichloride. On its best field of operation, *i.e.*, glassware, bichloride gave 56 positives and 34 negatives out of 90 tests while the solution gave 64 positives and 98 negatives out of 162. Tap-water was the solvent and anthrax the standard, while the conditions were kept as nearly identical as possible. On the hands my results with bichloride show so poorly that I prefer to make more experiments before pronouncing on its value. Septic wounds do surprisingly well with the chlorinated solution diluted with water (1 to 3 or 1 to 6) and applied on compresses. A weaker solution with prolonged contact is very effective.

An obstetrician should have an antiseptic hand, because of the very temporary duration of asepsis. A pair of rubber gloves were boiled hard for 15 minutes, laid on a sterile plate and exposed to ordinary conditions. Two tests were made every three minutes. The second trial of one glove, *i.e.*, at the end of three minutes, both tests were positive. The other glove took at twenty-one and twenty-four minutes. My left hand rendered antiseptic was absolutely negative up to 36 minutes when the test ceased.

One would think that a hand once antiseptic could be kept in that condition indefinitely. Out of eight attempts at complete hand-antisepsis for twenty-four hours three gave positives and five negatives. Of six attempts at five-hour antisepsis two gave positives and four negatives. The surgeon has a most valuable expedient in using one knife for the skin and another for the deeper parts. The obstetrician must get at his work through a contaminated ring. He deals with a septic finger, a septic vulva and an aseptic vagina —broadly speaking. No matter how sterile his glove the introduction of one finger will carry the germs of the vulva into the ostium vaginæ and may contaminate the whole tract. Obviously his only method should be to sterilize the vulva first, and then leave the vagina alone.

I know of no methods in general use which will sterilize a vulva. All fail when tried at the bar of the culture media. After sterilizing three different vulvæ I explained to Dr. Brodhead the *modus operandi*—he has experimented further and has kindly consented to discuss this part of the subject.

A pleasant surprise is the thermometric reading when the full technic for patient and attendant has been carried out. Recently my advice to pregnant women is to daily wash the mons veneris and all about the private parts with water 2 quarts, a heaping teaspoonful of calx, of salt and a half teaspoonful of pot. carb. Let it dry on the skin. The proportions should be reduced if any irritation is complained of, but as yet there have been no complaints save only from the heat of the water—this is better mixed hot and then allowed to cool. Without being too positive with but three vulvæ, one was sterile after the second washing, one after the sixth and the third was confined too soon to give any line. The difference in the cultures before washing and after was marked in every instance. The growths were slowed down. Three contrast (check) cases reached a maximum temperature of 100° F. during the puerperium. The three mentioned reached 99⅕° F. in one instance and 99° F. in the other two.

It may seem absurd, but I wish to emphasize that an antiseptic hand cannot be obtained by wiggling the fingers in any solution. The question of contamination must be answered by the culture process. P. D. Co. and the Board of Health put up little Löffler serum tubes and with care two culture strokes may be made in each one. A before and after test, if you wish; side by side. These can be incubated in the inside vest pocket. The P. D. tubes have rubber tips but those of the Board of Health should be sealed with wax. While the method is crude it gives fair results and may be the means of converting many from their pet technic. If any one should come

to the conclusion that the suggestions of the writer are worthy of trial then, to obtain good results fresh calc. chlorat. must be secured and it must be kept in small air tight glass or metal packages which are only opened when in actual use.

Finally, it is a well-known and commonly disregarded fact that all chlorine solutions depreciate very rapidly. In my experiments an active germicide effect of two-minute exposure was diminished to a five-minute one in a half hour and an eighteen-minute one in a day. After that it remained stationary for a time.

Note.—Dr. Brodhead reports only 5 positives out of 74 attempts at sterilization of the vulva.

121 West Eighty-eighth Street.

EXCISION OF THE FRENUM PREPUTII FOLLOWING LACERATION DURING A SUSPICIOUS INTERCOURSE.

BY CHARLES C. MILLER, M.D.,

OF CHICAGO.

IN this article I propose to recommend, as an addition to circumcision, a thorough removal of the remains of the frenum preputii, when this part has been distinctly lacerated or torn across during an intercourse with a woman who is likely to have been syphilitic.

By this operation, practised within twenty-four or forty-eight hours after the occurrence of the laceration and infection, it is hoped that infection

Fig. 1.

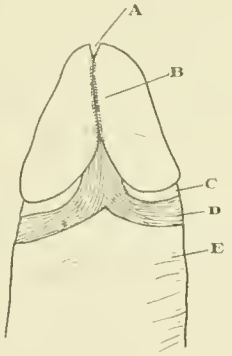

Fig. 1 shows penis after skin of prepuce has been cut away and mucous membrane trimmed. A represents meatus; B, remains of torn frenum; C, mucous membrane; D, raw surface between skin and mucous membrane; E, skin of penis.

with syphilis, where it has occurred, will be prevented from becoming constitutional.

If only one per cent. of cases are saved from syphilitic infection, by this simple procedure, we will have rendered that individual saved from infection an inestimable service, and, at the same time, no harm has been done to any upon whom the operation has been practised.

Note.—The illustrations are diagrammatic and all show line of frenum as longer than it really is in normal state.

Syphilis is an exceedingly common disease, and a very large per cent. of women submitting to illicit intercourse are syphilitic. In view of this, a laceration upon an unprotected penis during an illicit intercourse will in many cases subsequently mark the site of a chancre.

A great majority of patients contracting syphilis are never cured of the disease. This is usually

Fig. 2.

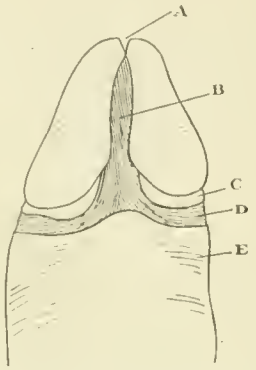

Fig. 2 shows groove made by scissors in excising remains of frenum. This is to be closed by a continuous suture of fine catgut before the sutures used in approximating skin and mucosa are placed. Bleeding of the parts will be controlled by the close continuous suture.

due to indisposition or inability of the patient to submit to prolonged skilful treatment.

Any measure which gives promise of preventing the development of syphilis, deserves a faithful trial until proved useless.

The course of syphilis makes it reasonable to suppose that constitutional infection may not occur for a number of hours at least after inoculation of the virus upon a raw surface.

Syphilitic infection is supposed to always occur through a break in the epithelial covering of the body. The frenum is a frequent site for the occurrence of abrasions or lacerations, as the result of violence during intercourse. Where this delicate bridle of tissue is completely torn across, atrophy will occur subsequently. As the part will disappear and functionate no longer, we are justified in hastening this somewhat by operation, if thereby we can save any of these cases from developing syphilis.

It is a disputed question, whether the mere presence of a redundant prepuce is sufficient ground for recommending its removal. Where the possessor of a redundant prepuce is exposing himself to infection by illicit intercourse, we are justified in advising the operation as a prophylactic measure, as by its removal we minimize the dangers of subsequent venereal infection.

If a patient consult for advice regarding a lacerated frenum, and he possesses a redundant prepuce, we are justified in advising circumcision, where the intercourse has been with some public woman, and as a further step to prevent the development of a possible chancre at the site of the frenum, it should be thoroughly excised during

the operation with a certain amount of the tissues upon each side and below as well.

In these cases the usual technic of amputating the prepuce will be followed. The skin is cut away along the line of the corona. The mucosa is now trimmed and hemostasis completed.

The cautery is to be used over the raw surface of the lacerated frenum in order that any surface

Fig. .

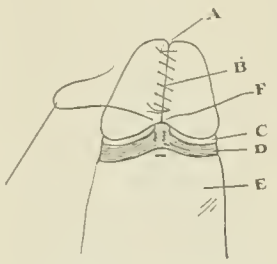

Fig. 3 shows groove formed by the excision of remains of frenum closed by continuous suture. F shows suture in place, which when tied will bring skin in contact with glans at former site of frenum. When this is tied operation concluded by approximating skin and mucosa around penis by a series of interrupted sutures.

infection be overcome before beginning the operation.

The frenum is to be extirpated with small curved scissors. This may be facilitated by drawing it out with tissue forceps. Such precautions are to be taken as are necessary to prevent contact of the lacerated surface of the frenum, with any raw surface to prevent any possible reinfection. The instruments used in this step of the operation are to be discarded until thoroughly sterilized.

Fig. 4.

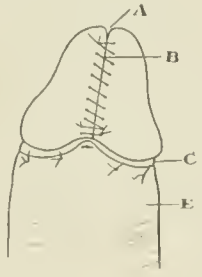

Fig. 4.—Operation complete. Groove left by excision of remains of frenum, closed by continuous suture and the mucosa and skin of penis approximated by interrupted suture.

As a result of our excision, in place of the remains of the lacerated frenum, we will have a groove about an eighth of an inch deep and somewhat wider. Beginning now near the meatus a continuous catgut suture is to be used closely approximate to the edges of the groove. A stitch is now placed so as to draw the skin forward in contact with the glans in the median line, and then the operation of circumcision completed in the usual manner.

Where the prepuce is not inflamed, the operation can be done with local anesthesia from cocaine. By carrying the needle along under the frenum, we can render the parts insensitive so that the frenum can be excised without pain.

A free oozing will commence as soon as we cut away the frenum. This will be controlled by the close continuous suture. If a needle with a cutting edge be used for the suturing through the glans, we will have a temporary hemorrhage from each needle puncture. No attention need be given to this as it will check of its own accord before the operation has been completed.

This procedure adds from three to five minutes to the length of time required for a circumcision, but it is easily performed without pain to the patient, and is not followed by any unpleasant complications or sequelæ.

The groove in the glans unites even more rapidly than skin and mucosa. Where plain number one catgut is used as a suture material, no further attention is required from this part of the operation, it coming away in a few days leaving the parts healed.

During a period of a little over two years, I have extirpated the frenum in this way five times. In only one case have there been any subsequent complications. In this, the first case, the tissues were cut away very sparingly forty-eight hours after the infection of the laceration. A portion was left and a chancroidal infection developed. This was healed without much difficulty with a perfectly satisfactory final result. It illustrated the need of a careful and free excision of the tissues. None of the other cases have developed a venereal sore at the site of the operation, nor symptoms of syphilis subsequently.

If the operation prevents one per cent. of cases from developing a constitutional syphilis, it will prove a valuable addition to the operation of circumcision in those cases.

CHICKENPOX CONCURRENT WITH SMALLPOX.

BY PHILIP D. BOURLAND, M.D.,
OF LAKE LINDEN, MICH.;
SURGEON TO THE CALUMET AND HECLA MINING COMPANY.

Comparatively little has been written upon this subject, notwithstanding the fact that within the last three years varicella and variola have had unusual opportunities to present themselves simultaneously, owing to the wide distribution of variola.

It is conceded that varicella and variola are distinct diseases, yet their points of resemblance make their association interesting and worth study. Among the few who still affirm the unity of the two diseases are men of reputation, which fact, in connection with our ignorance of the specific cause of chickenpox, at least, and the difficulties of differential diagnosis occasionally met with, lends additional interest to the subject.

The views of the dissenters have been fully quoted by J. S. Schamberg and need not be recon-

sidered. It is not my purpose to argue this matter, but to proceed upon the supposition that the identity of the disease with which I dealt is doubtful, and to attempt to justify a diagnosis of chickenpox in my cases, at a time when smallpox was rife, and its importance deeply impressed upon the public mind.

The prevalence of smallpox in Houghton County for nearly three years, and of chickenpox during a part of that time, has furnished an unusual opportunity for a study of these diseases in concurrence. Variola prevailed mainly in Calumet, including the contiguous villages Laurium and Red Jacket, and in Houghton and Hancock and their environs, and varicella mainly in Lake Linden, distant five miles from Calumet and twelve from Houghton and Hancock. Free communication between the various towns existed at all times, however, and abundant opportunity was afforded for carrying disease from place to place.

I have not been able to ascertain the total number of smallpox cases in the recent epidemic, but an idea of its prevalence may be had from the figures furnished me by Mr. Robert Wetzel, health officer of the Calumet district. There were reported between the dates May 31, 1900, and December 3, 1902, 106 cases. The remainder of the county may be supposed, without great error, to bring the total to four or five hundred cases. Fully 75 per cent. of those in Calumet were adults. The epidemic was a mild one, not over four deaths resulting, a mortality of about one per cent. What percentage of cases were confluent I have not been able to find out. It may be said that the cases presented, as a rule, the classical picture of a mild type of variola.

In Lake Linden and South Lake Linden, there were probably not more than a dozen cases of smallpox throughout the entire epidemic. In this district, however, varicella was especially prevalent from the fall of 1901 to the following spring, fully 100 cases occurring in my practice alone. At the time of the outbreak of the varicella epidemic there were, to the best of my knowledge, no cases of variola in those two towns. A few cases appeared later, in the summer of 1902, and some had existed previous to the varicella.

On November 20, 1901, I found a case of varicella in South Lake Linden. On inquiry, I found that there had been other cases among the schoolmates and playmates of my patient; cases which no physician had been called to attend. Some of these children attended the German Catholic School in Lake Linden. This school had an attendance of 150 children from six to fourteen years old. On December 7 varicella appeared in this school and soon became widespread throughout its membership, but was restricted, in Lake Linden, to this school. In South Lake Linden, where some of the pupils lived, numerous cases developed also.

To show how closely the spread of the affection was limited, I can say that I was not called on to treat a case outside of the German School pupils or members of their families, until January 11, 1902.

Careful record was kept of 29 of the earlier cases. In each instance there were two or more children in the infected families, and in the absence of protection by previous attack, nearly all those of an easily infected age became infected. Those not yielding to infection were usually over twelve years old. One child of eight, who had had varicella at three, had it a second time.

The ages of my patients varied from nine months to fifteen years. By periods of five years the table is as follows:

Under 1 year,.....	2 cases.
From 1 to 5 years inclusive,.....	11 cases.
From 6 to 10 years inclusive,....	13 cases.
From 11 to 15 years inclusive,....	3 cases.

To sum up:

Total number of children in infected families, ...	53
Number of cases,.....	29
Protected by previous attack,.....	8
Infected notwithstanding previous attack,	1
Not yielding to infection, though not protected by previous attack,.....	16

The ages of these last were, as I have elsewhere stated, usually more than twelve years.

Thirteen of the 29 had been vaccinated within the preceding two years. Eleven of the vaccinations were said to have taken, though scars were not always found to corroborate the statements. The remaining 16 had never been vaccinated.

Regarding the vaccination of the parents of these children my data are meager. In four instances both parents had been successfully vaccinated in early life, at such an interval that the vaccination could no longer be considered protective. My impression is, that the remaining nine pairs were not vaccinated. None of the exposed adults had ever had variola, and none yielded to the varicella infection, if we exclude a girl of fifteen, my oldest patient.

In studying the incubation period, a number of points must be remembered. First: several children of the same family, attending the same school, and undergoing the same exposure, would develop the disease within a few days of each other. In such cases, the first child becoming sick cannot be supposed to have infected the others, nor can in any way, the time of incubation be definitely settled.

It is only in those cases where children too young to go out of doors, or to play indiscriminately with other children, contracted the disease from their older brothers and sisters, that the incubation period can be determined with any accuracy. In twelve such instances the period varied from eight to sixteen days, the average being between eleven and twelve days. A prodromal stage of a few days, was noted in several cases, with malaise and anorexia as symptoms. There were sometimes no symptoms of onset, the parents, attention being first drawn to lesions on

the face. In very young children fretfulness, anorexia, itching, and fever ushered in the sickness. The older children presented various combinations of the following symptoms,—headache, usually frontal, and not severe, dizziness, moderate lumbar pain, anorexia, chilliness, nausea, sore throat, and itching. Excluding the cases without symptoms, anorexia, chilliness, sore throat and itching were universal.

Objectively, fever not higher than 101.5° F. was noted, usually it did not exceed 100.5. Congestion of the pharynx fauces and palate was present in nearly all cases, and was accompanied by lesions of the mucous membrane.

The skin lesions always appeared within thirty-six hours, usually within twenty-four. There was in no case any preliminary scarlatiniform rash. The lesions were invariably discrete and the unaffected skin was not red.

As a rule they first appeared on the trunk, generally selecting the back, and soon after coming out on the chest. The back was usually more thickly covered than any other region. The forehead, temple, back of neck, postauricular region, axilla, arms and legs were also cited as localities of first appearance of lesions in a few instances. Frequently the disease was unnoticed till the lesions appeared on the face, when an examination would show that they had existed for some time on the trunk and limbs. In such cases the oldest lesions were usually found on the back. The spread of the rash was always rapid, full eruption always occurring in from twelve to twenty-four hours, and occasionally in six hours. The lesions were numerous, and widely distributed. The scalp, forehead, temples, eyelids, the lower parts of the cheeks, chin, postauricular regions, neck, back, chest, axillæ, arms, forearms, wrists, dorsal and palmar surfaces of the hands, the fingers, the abdomen, buttocks, inner surfaces of thighs, legs and feet, were attacked, and the pharynx, fauces and hard palate very frequently showed lesions, while the soft palate and tongue only occasionally presented them. The lesions of the mucous membranes were accompanied by a diffuse congestion out of all proportion to the redness circumscribing the cutaneous lesions.

Of the skin surfaces, the back, chest, scalp, and some portion of the face, usually the forehead, were involved in all cases, the back being the scene of the most numerous lesions. The arms, forearms and wrists were attacked next in frequency, then the thighs and legs. No preference was shown for flexor or extensor surfaces. The palms and back of the hands were involved in several cases, and in one instance, a finger. The feet and toes were rarely affected.

The lesions always began as small, thinly covered, red, raised papules, involving only the superficial layers of the skin. Induration was very slight or absent. There was no shotty feel. Slight hyperemia was always present, the papule being encircled by a narrow zone of congestion. The papules were usually tender on pressure. Within a few hours, the papules began to vesiculate. The vesicles were small, thin, and at first clear or pearly. Their average diameter was 1 to 2 mm. but occasionally they were larger, 2, 4 or even 5 mm. in diameter. In a case of varicella bullosa, some vesicles measured 8 mm. and over. On the second or third day, the vesicles became turbid, and at this stage, not only flattening, but very often more or less umbilication was observed. The shriveling of the vesicles now began and progressed rapidly till in four or five days, sometimes only three, from the beginning of vesiculation, crusts varying in color from yellow brown to chocolate, and surrounded by a narrow zone of congestion, were all that remained. In a number of instances it was noted that clear vesicles became turbid, brownish and shriveled within twenty-four hours. As the papules were vesiculating, fresh crops appeared, to be followed in turn by others till the disease was spent, so that, by the third or fourth day, lesions were present in all stages from papules to drying vesicles.

At the end of a week, or sometimes at the end of five days, all lesions were drying, and the crusts of the earlier ones loosening. The crusts of the last crop did not fall for from ten to fifteen days. The greatest persistence was shown by the scalp lesions. There was no scar unless scratching had been indulged in, with resulting infection. A very faint light brown stain occasionally remained, for only a short time, however. The fever did not decline with appearance of the eruption, but persisted, as a rule, till by the absence of further crops of papules and by drying of the older lesions, the disease showed that it was declining. There was in no case any secondary fever. Instead of a rise as the vesicles became turbid, there was a tendency toward a fall of temperature.

An interesting symptom, which I have not seen described, is enlargement and tenderness of the occipital glands. Of my 20 cases, these glands were affected in 16; both sides 10 times, the right alone five times, and the left alone, once.

The enlargement and tenderness began from one to three days after the onset, and persisted, in some instances for three weeks, usually however subsiding with the decline of the disease. There were no complications, sequelæ or deaths among my cases.

The description just concluded corresponds in nearly every detail with that of chickenpox. I have reported vesicles on the forearms, hands and fingers in several cases, which is not usual in chickenpox, but which by no means excludes that affection. Wanklyn (an English writer) says that the freedom of the hands and forearms in varicella, as compared with smallpox, is remarkable, but that we cannot exclude varicella if vesicles occur on the hands and feet. It is the relative distribution that is to be emphasized.

Differential diagnosis was, as a rule, easy. The more severe cases occasionally made me reserve my decision for a day, but usually attention to the following points, made the diagnosis clear: (1) Mild onset; (2) absence of preliminary rash; (3) rapid appearance of eruption; (4) failure of

temperature to decline with appearance of eruption; (5) distribution of lesions; (6) character of lesions; (7) rapid vesiculation; (8) successive crops of papules; (9) absence of secondary fever; (10) short course of disease.

I cannot speak from personal experience of the blood picture of varicella and variola, nor of the microscopical appearance of the vesicular fluid as described by Professor Courmont of Lyons.

In concluding my analysis of the epidemic described as chickenpox, I would emphasize the following points:

1. The concurrence of smallpox in no way caused the course of my cases to depart from that typical of chickenpox.

2. Vaccinated and unvaccinated children showed equal susceptibility to infection, and the course of the sickness was the same in each class. This fact excludes varioloid.

3. None of my patients had ever been exposed to smallpox or had ever had it.

4. No adults were attacked notwithstanding absence of vaccination in a majority.

5. Five of the children exposed had had chickenpox in a previous epidemic, these previous attacks conferring immunity except in one instance.

6. Smallpox and chickenpox are distinct pathological entities, and though in intimate association, neither disease influences in any way the natural history of the other.

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SPECIAL ARTICLE.

MORBID ANATOMY AND HISTOLOGY OF PULMONARY TUBERCULOSIS IN RELATION TO ITS GENERAL PATHOLOGY AND CLINICAL MANIFESTATIONS.*

BY G. SIMS WOODHEAD, M.A., M.D.,

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WHEN the Henry Phipps Institute for the Study, Treatment, and Prevention of Tuberculosis did me the honor to invite me to give one of this series of lectures, I felt that I had little time in which to prepare any lecture worthy of the occasion. I was just in the midst of the work of our term, and as I had to start for your shores as soon as the term ended, I knew that until I got onto the Atlantic (whose vagaries at this time of the year have to be reckoned with) I should be able to give but little time or attention to the thinking out of the details of my address.

The opportunity of visiting your great country thus presented to me was, however, so tempting and the prospect of meeting my many valued friends on this side so attractive that I determined to give you the results of some of my own work on the relation of the morbid anatomy and histology of phthisis to its general pathology and clinical manifestations. I was all the more tempted to follow this line of thought from the fact that in recent years the pessimistic views of the physician—based on the pessimistic foundation laid by the earlier pathologists—though gradually giving way before the evidence afforded by more recent research are hard to scotch and still more difficult to kill. It will, of course, be understood that the advancing and advanced lesions found in cases of pulmonary tuberculosis that had succumbed could not but prove fatal. The presence of Virchow's caseous tubercle in all its fearful and destructive simplicity seemed to leave no hope for the recovery of any patient affected; and what the pathologist found one day the physician accepted the next. It was perhaps natural that this should be the case but the evil wrought by this pessimism was incalculable and I think that most of those of you here to-night, who have given even a small amount of attention to the subject will agree with me that this view as to the incurability of tuberculosis had more influence than any other single factor with which we are at present acquainted, in interfering with the successful treatment of a disease that should, I venture to say, now be looked upon as among the most curable—when taken early enough, treated under proper conditions, and for a sufficiently long period.

If modern pathology had been responsible for nothing beyond the effect that its findings have had on our ideas concerning the course of the tuberculous processes, especially in the lung, it would have more than justified its claim to be one of the most important, if not the most important, of all the sciences ancillary to medicine.

I am here to speak as a pathologist, and it is possible, nay, even probable, that some of you may be of opinion that I claim too much for my subject; but of this I am convinced—that the more closely the pathology (including morbid anatomy and histology as read in the light of recent bacteriological discoveries) of tuberculosis is studied in the cases that come under the observation of your physicians, the greater will be the influence of the work ultimately done in this Institute. The cure of the individual must, naturally, be the most pressing and important claim on all those engaging in this work, but it must be remembered that there are far wider reaching questions behind and beyond this—the early detection of the disease, if treatment is to be most successful; and the prevention of the disease, if the community is to derive the greatest benefit from the warfare now being carried on; and these must be worked out, not in the ward merely, but also in the side-room and in the laboratory.

I have said that it is only during recent years that much has been heard of the curability of pulmonary tuberculosis, but it must be borne in mind that after the first shock produced by the observations recorded by Rokitansky and by Vir-

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chow had lost some of its force, a number of observers drew attention to the fact that in the lungs of old people who had succumbed to diseases other than those of tuberculous origin there could often be found local apical thickening of the pleura or, still more frequently, deeply pigmented irregular scars which were evidently the result of some considerable loss of tissue at an early period of life. My attention having been drawn to this fact, I took the opportunity, after I had been appointed pathologist to the Edinburgh Royal Infirmary, to make a careful search for evidence of what I might speak of as healed tuberculous lesions, and I found that in old people such evidence was to be found in at least one out of every three who came to the post-mortem table. Nay, more, I soon became firmly convinced that even in those cases that succumbed to tuberculous disease there was usually more or less marked evidence of a sturdy war waged by the tissues against the invading tuberculous process, and that in most cases the tissues failed in their endeavor to check the advancing process simply because they were placed under disadvantageous conditions, not as the result of the action of the specific *materies morbi*, but as the result of interference with their nutrition. The cod-liver oil treatment, so long the most successful of all, had its foundation in the belief that this substance served some special nutrient or therapeutic purpose, as a result of which the tissues were strengthened and were thus enabled to resist the attacks of the disease-producing factor; whilst the present-day treatment of tuberculosis is founded on a similar belief that fresh air, good food, efficient excretion of waste products, rest (opportunity for building up the tissues, food that will supply energy with least draft on the tissues), will enable these tissues to withstand the attacks of the disease-producing factor; while to kill it in the second, or at any rate to render it harmless; and finally to assist in the removal not only of the bacillus, but of the dead or degenerated tissue in which it had managed to effect a lodgment.

It is perhaps superfluous at this stage to show slides of the tubercle bacillus, but some few of you may not have seen these microbes—low vegetable parasites—so fully studied by Robert Koch in his epoch-making work sent out from the Royal and Imperial Institute of Public Health in Berlin. (A series of slides illustrating the form and relative size of the tubercle bacilli as found in experimentally produced tuberculosis, in the tuberculosis of the human subject, and in phthisical sputa were then thrown upon the screen.) For some time after the appearance of Koch's wonderfully lucid and convincing paper a certain number of skeptics,—perfectly justifiably, no doubt, on account of the extreme novelty of the ideas so promulgated,—attempted to throw doubt first on the accuracy of the observations and then on the reliability of his conclusions, but it may now be fairly claimed that Koch's work has, in the main, withstood the attacks even of the ablest of his critics. There seems to be no manner of doubt that we may accept Koch's tubercle bacillus as the *causa causans* of tuberculosis. Here, however, let me put you on your guard, as I guard myself, against a mistake into which it is very easy to fall; *i.e.*, that because a tubercle bacillus comes near, or even into contact with, the human or brute body, an attack of tuberculosis necessarily results. This bacillus must make its way not merely onto a free surface, but into the tissues of the body, before it can do any harm; nay, more, it seems that, in the human body at any rate, the tissues must be damaged or weakened and a special mode of entrance into these damaged tissues must be prepared for the tubercle bacillus before it can work its dire effects. During the course of my work my hands have for weeks, months, or even years, been almost daily soiled with tubercle bacilli; I have no doubt that I have swallowed many, and that some have made their way into my respiratory tract; but none of these has done me much, if any, harm because while I have been working with them I have carefully protected any cuts on my hands and have refrained from working when I have been run down in any way, and especially when I have been suffering from any catarrhal processes in the respiratory or alimentary tracts.

From my experiments on animals I am satisfied, as are all experimenters, that tuberculosis is never produced without the presence and action of the tubercle bacillus, but my own observations on human patients, especially on children, confirm those of many others, that unless the tissues are weakened or damaged—*i.e.*, the soil is prepared—there can be no reaction between the bacillus and the tissues which can end in the production of a tuberculous lesion. The exciting cause must be present, but in the human subject at any rate there must also be one or more predisposing causes. In the lung this predisposing cause appears to be catarrh; that is, a congestion of the vessels of the mucous membrane, accompanied by some slight proliferation of the epithelial cells lining the air vesicles, with an increased pouring out of fluid and an emigration of a larger number of white blood-cells. In the air vesicles of the lung, especially when expansion and contraction are weak or imperfect,—*i.e.*, at the pulmonary apices in adults, near the the root of the lung in children (and in monkeys), beneath areas of adhesion between the pulmonary and costal pleuræ, and at the base of the lung when there is adhesion of the pleuræ in this position especially if the liver be adherent to the under surface of the diaphragm,—there is usually an accumulation of catarrhal products in which if bacilli gain entrance and are allowed, undisturbed by any great amount of movement, to multiply, to produce their special products and to cause those degenerative changes with which they are found to be associated causally. Once give them a footing under these conditions, and they are in a favorable position to produce tuberculosis.

It is evident from what has already been said

that the tubercle bacillus may reach the lungs by way of the air-passages; that they make their way to those points at which there is least movement and in which, as a rule, there is some degree of collapse, often associated with a condition of catarrh —*i.e.*, a condition in which the protecting layer of epithelium has been damaged, the lung tissue then being in the same position as the hand on which the epithelium has been damaged. From this coign of vantage they may be distributed, still by the air channels, to almost every part of the lung, setting up a condition of tuberculous catarrhal pneumonia characteristic of the latter stages of the so-called acute phthisis. In many cases this acute phthisis is nothing but an acute secondary pneumonic tuberculosis following a rapid distribution of tubercle bacilli embedded in the caseous material derived from a chronic primary focus. It should be noted that in these cases caseation of the epithelial tissues usually takes place at an early stage of the process.

So much for the distribution by the air-passages. We now come to a second system of distributing or infection channels which appears to play a prominent part in every case of tuberculosis, chronic or acute—the lymphatic system. Between the cells of the tissues and especially around such structures as the blood-vessels, even the smallest of them, there is a kind of network of channels or spaces (the lymph spaces) that has sometimes been compared to the system of pores seen in a sponge. Such terminal spaces gradually lead into small definite channels and finally into tubes or vessels of considerable size and with distinct walls—the lymphatic vessels. These tubes lead to little filters known as lymphatic glands. Much of the fluid that in the process of nutrition passes from the blood-vessels passes into these lymphatic spaces, and from this fluid the tissues take up their nutrient material, throwing back into it their waste or effete products. The fluid throws some of these waste materials back into the blood, but certain of the more solid particles pass to the lymphatic vessels and by them are carried to the lymphatic glands, where the coarser particles are filtered out, and where, too, certain changes appear to be effected even in the composition of the fluid lymph.

Let me give you an illustration. If a patient tattooed on the forearm could be examined within a few days of the operation, small particles of pigment would be found in the tissues (cells in and lining the lymph spaces) at various points between the tattooed patch and the elbow, and even above the elbow. If the patient were to live for some months and then were to die, it would be found that, except at the tattooed patch and in some little hard nodules in front or at the side of the elbow or under the armpit, there is no pigment, but in these latter positions black, red, or blue pigment, according to the material used by the artist, has accumulated, often in quantities, so that it can be seen with the naked eye.

Most of you know how the glands under the arm swell after vaccination. This is because the lymphatics of the arm carry the vaccine virus to the glands, they are irritated by the vaccine matter, there is proliferation of cells, swelling of fibers, an accumulation of fluid, and enlargement of the whole gland.

Exactly the same arrangement of lymph spaces, lymph channels and lymphatic glands is met with in the lung. There are spaces around every vessel and bronchus and between the finer tissue elements; these open into lymph vessels which in turn convey the fluid to the lymphatic glands situated at the root of the lungs. It is important to bear this arrangement of the lymphatics in mind, for we find that in tuberculosis of the lung the tuberculous virus is carried from the air vesicles by the lymphatics to the lymphatic glands. The tubercle bacillus or its products appear to exert some irritant effect directly upon the cells lining the lymph spaces, as a result of which, just as in the air vesicles, we have a proliferation of the cells and a formation of new tissue sometimes resulting in caseation or the formation of a soft pultaceous mass which is supposed to resemble cheese; at others—and this is a point to be specially borne in mind—in the formation of fibrous tissue.

As regards this formation of fibrous tissue, it may be well to point out that the most marked feature in chronic tuberculosis is the formation of fibrous tissue in the pleura immediately above it; and it is an easy matter in most cases to determine roughly the comparative duration of the disease at any part of the lung by noting the thickness of the pleura and of the interlobular septa; so that in a chronic phthisis in which the patient succumbs rapidly as the result of an acute consolidation, there is usually well-marked thickening at the apex; this gradually shading off to the lower part of the upper lobe and being represented merely by a thin film of fibrin over the lower lobe.

Where the tuberculous process specially affects the adventitia or outer coat of the blood-vessels and bronchi this fibrous tissue formation is often exceedingly well marked. In some cases it would appear almost as though the tuberculous tissue at first of a type which may be compared to an irregular granulation tissue, may become converted into fibrous tissue directly; but it may be accepted as a general statement that where the tubercle bacillus manages to obtain a footing, it brings about a certain degree of caseation; but that in the immediate neighborhood of this caseous material, which in some sense appears to act as a foreign body, the fibrous tissue is partly at any rate the result of the action of this foreign body upon endothelial cells or connective tissue cells, which, after all, must be looked upon as cells of an endothelial type.

Wherever this fibrous tissue is formed, it affords evidence of a good reaction on the part of the tissues and therefore of the powers of resistance; it is by the formation of this fibrous tissue around the areas of caseation that they are cut off and the lesion localized. Where this localization

is incomplete, as it often is, the bacilli pass along by them to the lymphatic glands, here giving rise to proliferation, caseous degeneration or fibrous tissue formation, just as is the case along the lines of the lymphatics. Having once reached the glands at the root of the lung, the process may, for a time, be localized; but unless the conditions are favorable and what we may call the reaction of the tissues is good, the tuberculous virus may be carried from point to point, successive glands in the neighborhood localizing the disease for a time, but ultimately allowing of the passage of the virus to other organs.

In connection with the invasion of lymphatic glands by the tubercle bacillus, it should be noted that once a lymphatic gland is affected, the course of the lymph circulation may be diverted; and again that any area usually drained into a lymphatic gland becomes much more readily affected when that gland becomes tuberculous than before this takes place; I think I have seen cases in which the lymphatic gland appears to have become caseous or cheesy before the area drained by it had become tuberculous. It is somewhat difficult to prove this; but I show you a specimen in which we have an exact localization of a tuberculous area to that part apparently drained by a small gland at the root of the lung.

The third method of transportation of the tubercle bacillus from one point of the body to others is by way of the blood-vessels. For some time it was supposed that the acute miliary tuberculosis that so frequently supervenes on the more chronic processes, was something essentially different from the larger primary lesions; but the identity of the two sets of lesions had been accepted even before Koch had pointed out that the exciting cause of the two processes was the same. It was difficult to determine, however, how the tubercle bacillus made its way from the primary lesion to every organ and tissue of the body. Weigert was able to point out that in a case where there was tuberculosis of the wall of the thoracic duct the bacilli were carried from this lesion to the veins, from which they passed through the heart and thence were distributed to the capillaries of every part of the body. In these capillaries, blocking them and becoming attached to the endothelial lining, they again set up a proliferation in and around the capillary vessel, as a result of which the minute tubercles met with in this condition soon became manifest to the eye.

It must be remembered that these different methods of spread of the virus seldom occur alone. Whenever the air passages are affected we find, invariably, that the tubercle bacilli make their way into the surrounding lymph spaces, there giving rise to the proliferative and regenerative changes already described. Similarly, we find that in acute miliary tuberculosis there is, in each nodule, evidence of the invasion of the lymphatics by the tubercle bacillus, and it is because we have this affection of the lymphatics that the various lesions ultimately become localized. It is only through them that we can have a stimulation and proliferation of the connective tissue cells, new formation of fibrous tissue, and localization and absorption of the diseased tissues. I mention these methods of spread of the disease because in the various kinds of tuberculosis met with by the clinician, we have ample evidence that one or other predominates at different stages of the disease.

It may be well here to indicate, briefly, the history of a case of pulmonary tuberculosis, especially as by referring to this history in its various phases we may be able to gather how it is that, at one stage the disease may be perfectly curable, but how it is that, as the disease advances, the chances of permanent or even partial cure are more or less rapidly diminished. I wish you to pay special attention to the periods at which the various processes come on; and also the times during which they are prolonged; otherwise it may be difficult to understand why a patient who has had phthisis for perhaps two or three years and appears to have lost very little ground indeed, should suddenly begin to go down hill rapidly and die within a few months.

It has already been mentioned that in a case of phthisis apical catarrh is the first condition noticed, this being accompanied by congestion and followed by some consolidation the result of proliferation of the epithelial cells, such cells gradually accumulating and coming to fill the air vesicle. This breeding-ground for the tubercle bacillus may gradually spread in area; but it will be found that the bacilli causing degeneration of the epithelium make their way into the surrounding lymph spaces, there, especially if the tissues are well nourished, giving rise to the formation of fibrous tissue.

If at this stage the patient be placed under favorable conditions, of nutriment, of rest, so that the waste products of the body may be carried away regularly and systematically, the reaction of the tissues is so complete that the dead patch is practically surrounded and cut off; the bacilli remain inactive in the dead mass; or they may even be killed. The degenerated tissue is absorbed very gradually and there may be complete "cure," especially when the initial lesion has not reached any very great size. The loss of respiratory surface is so slight and the reserve so great that the patient may be considered to be practically normal again.

If, however, the patient be not placed under favorable conditions, or if after a short period of treatment he returns to his old life and habits, this focus of dead material may ultimately break through the surrounding layer of limiting tissue and a further considerable patch of tuberculous consolidation may be the result.

In most cases, especially if there be intermittent congestion of the surrounding tissues, the degenerated or caseous material may become softened, and it is during this stage of softening that secondary infection goes on most readily.

Let us suppose that this mass cut off from the bronchus with which the air vesicles were orig-

inally associated, extends to the wall, perhaps of another bronchus; as it advances in this wall it cuts off the vascular supply, first that of the peribronchial tissue and then that of the submucous tissue, until at last by destroying the vitality of the bronchial wall it brings about a process of ulceration; then the tuberculous material with its contained bacillus may immediately be carried into the air passages, whence it may be expectorated almost entirely, though in most cases a certain proportion of the softened material along with the bacilli is carried to other areas, where fresh tuberculous catarrhal pneumonia is induced, and the whole process may be repeated but upon a more extensive scale. This process may be again repeated—at each repetition, larger and larger areas being affected. It is evident that in such cases as those just described, the loss of lung tissue may be very great indeed, whether it be broken down or not—*i.e.*, whether the lung be merely consolidated or whether it be excavated. Even the great reserve mentioned above is unequal to the draft made on it, and even should the patient be patched up for a time he must face the fact that he is not cured and never can be, though under proper treatment and with great care he may continue to lead a useful if not very active life.

It is sometimes difficult to understand why the small hemorrhages so characteristic of the early stage of phthisis should occur so frequently especially when we remember that in the tuberculous areas themselves the blood-vessels are practically obliterated. It must be remembered, however, that around each tuberculous area the conditions of the vascular circulation are somewhat altered, owing to the fact that some of the vessels are closed; as a result of all this a collateral circulation must be set up and maintained. Moreover, an increased quantity of blood is required to meet the wants of the proliferating tissues; but we find that the hemorrhages usually take place as the result of some extra temporary strain and are an indication of local changes. It will be noted that in some of the specimens I show that we have a systematic invasion of the lung commencing at the apex and gradually working toward the base. It will be noted, moreover, that the basal processes are always more extensive, that the consolidation is more diffuse, and the degeneration more rapid than at the apex; that we have in fact a more markedly caseating catarrhal type in this position than at the apex. The whole of the lower lobe of the lung may be invaded in a few weeks, especially when the resisting powers of the tissues have been gradually broken down by overwork, general ill health, want of sufficient nutriment, imperfect oxidation of the blood and accumulation of waste products in the tissues.

These factors do not act at once; but at work over considerable periods they gradually wear down the resistance of the tissues, with the result that the tubercle bacillus finds an easy prey wherever it finds lodgment.

In addition to the catarrhal process, there is in most of these rapid cases of basal phthisis a more acute pneumonic condition, the air vesicles in the spaces between the catarrhal pneumonic patches in such cases being filled with a fibrinous exudate. The process seems to be associated with the alterations in the circulation, but partly to be the result of a secondary infection; wherever it occurs, however, it is a serious factor in the production of consolidation, and always accelerates the rapidity of the process, patients so affected, as a rule, dying quickly.

It will be seen at once from this rough description that a physician has a considerable period during which he may hope to treat his patient successfully, but that at any moment, almost, a series of more acute changes may supervene after which he has no right to expect recovery; though it must be acknowledged that in a few cases patients do recover even after such expectation is no longer justifiable. Nature is always more powerful than we give her credit for, and often helps us when we have given up all hope. This, however, is something we should never presume on, and the importance of the early diagnosis of tuberculosis can scarcely be too keenly appreciated, nor that of early treatment.

We now come to a phase of the question that has been recognized by many physicians but one that is not so generally recognized by the patient. A patient who has once suffered from tuberculosis must remember that although he may be partially protected (though of that, however, we as yet know nothing), he does not enjoy any definite immunity against future attacks of the disease; and it is absurd for any one to decry a system of treatment because it does not confer a lifelong immunity to the disease against which it is directed. I show you a specimen in which there is an old scar in the lung, from which all tuberculous material had disappeared, leaving a little nodule of pigmented fibrous tissue surrounding a few particles of calcareous matter. That patient suffered from phthisis many years ago and had recovered; but you will see that throughout the remainder of the lung we have now the lesions of an acute miliary tuberculosis; the patient succumbed to an infection in all probability of entirely new origin; though it is possible that it may have been the outcome of some old but latent lesion either in the lung or in some other part of the body, from which tuberculous virus has made its way into the blood-vessels and thence has been distributed throughout the body.

Such a case as this to my mind, though exceedingly encouraging in many ways, should lead us to insist that patients even after discharge from sanatoria where the treatment has been successful, should continue the treatment, perhaps in a modified form, throughout their whole life; as it is impossible to state when a patient can come back to the old conditions of life with impunity; in fact, one may lay it down as a general proposition that it is only as we insist on the improvement of the conditions of life wherever such im-

provement is possible, that we shall be able to diminish the morbidity as apart from the mortality, of tuberculosis. It is here that the medical officers of health, and sanitary officers can play so large a part; and that an institution of this kind can do so much to spread a knowledge of the importance of light and air in the home and in the workshop, of sufficient food even though plain, of the danger of prolonged periods of overwork, except in the case of the very strongest; and of the importance of periods of rest during which the organs and tissues of the body must not only be built up, but may get rid of the waste material that accumulates so rapidly during periods of active exertion.

This brings us to a very important question indeed. Although I have every faith in sending patients who can afford it to places where they can comfortably remain in the open air and where there is plenty of light, I think there is a danger, and a very great danger, of overlooking the fact that the open-air treatment may be carried out at the patient's home, and that so far as this branch of the treatment is concerned it is not so much a matter of getting a good climate as of getting pure, fresh air for the patient.

There can be no doubt that the sanatorium treatment has been successful, not because of any special climatic conditions associated with each institution, but because whatever the climate the patient has been encouraged to live practically in the open: diet, exercise, and rest, of course, being carefully attended to. All acknowledge that a sanatorium treatment is of inestimable value in tiding over the difficult and dangerous early period of the disease; but it will be still more valuable just in so far as it teaches the patient to carry out in his own home the principles and methods adopted in the sanatorium. It always seems to me that a patient will be much more likely to have faith in the efficacy of the methods used, if they are carried on in familiar surroundings and under conditions of climate, etc., to which he is usually exposed. If he is sent to a special climate resort, he is apt to think that the success of his treatment depends on something special in the climate; and while this is of course the case to some extent, in so far that in a bright, dry, bracing climate the open-air treatment is more agreeable and a cure effected somewhat more quickly perhaps, there is no fundamental differences between the two, the closer you can bring your patient to his every-day manner of life during treatment the more likely he will be to carry out your instructions after discharge from the sanatorium.

I may say that at Cambridge, a place little above the sea-level, situated in the fen district where fogs are frequent and sometimes very dense, great success has been attained in the open-air treatment of phthisical patients in the Addenbrookes Hospital. I mention this fact for what it is worth; but I think that it bears out the contention of some that the method of treatment is in most cases more important than the exact place in which it is carried on.

Ladies and gentlemen, those who are responsible for the inception, organization and working of this Institution, have undertaken what most of us consider to be one of the most beneficent works on which men can engage. The endowment is munificent; and as the workers are both capable and enthusiastic, I think that we may look forward with very bright hope to the outcome of the work carried on. But the work to be done cannot all be accomplished even under the favorable conditions that here obtain; and I would ask you not to be disappointed should you not attain all that you hope in the immediate future. There is much quiet and steady spade work to be done. You will, I know, relieve and cure many patients; but you have then touched but the fringe of a great problem. You have to determine the exact pathological conditions met with in individual patients and in groups; you have still much to learn concerning the condition of nutrition, of waste, and of repair; you have physical problems, chemical problems, bacteriological problems and others of the greatest complexity; these can be undertaken only by men skilled in methods and trained in accurate observation. They may have to work for years before they are able to gain results that can be utilized, or that can be brought into a great scheme of knowledge, from which further advances can be made; but we may all entertain the hope, and one well-founded, that under honest, persevering, patient investigation even the most difficult problems may be compelled to give up their solution. While working for the benefit of the individual, we must keep our mental vision fixed on a point beyond; on the possibility of preventing the invasion of the tissues by the tubercle bacillus; of studying the life-history of this organism so that in time as we gain the knowledge of the conditions under which it exists, both outside and in the body, we may gradually so circumscribe its sphere of operations that it may no longer remain a factor of disease especially when we are wise enough to insist on those improved sanitary and social conditions without whose aid the tubercle bacillus even to-day would lose much of the terror attached to its name. I congratulate the Henry Phipps Institute on what it has already achieved; but I hope for it and those associated with it a still more useful, beneficent and brilliant future.

Cryoscopy of Animal Organs. Just as normal blood and urine freezes at a certain temperature, definite figures can be obtained for entire organs, but the normal fluctuations are somewhat greater. The experiments of Blanck (Virchow's Archiv, Vol. 174, No. 2) were conducted chiefly with animal kidneys. The freezing point lies between $-0.86°$ C. and $-1.35°$ C., and is generally the same on both sides. By passing large quantities of water through the kidneys only slight changes occur, but alkaline waters have more effect. Diuretics such as diuretin and agurin reduce the osmotic tension of the kidney considerably. Phloridzin is without action; likewise chromate of potash and urinary stasis change the freezing point but little.

MEDICAL PROGRESS.

MEDICINE.

Some Points in Diagnosis of Smallpox.—The recent outbreak of smallpox in New York City has furnished considerable material for valuable conclusions in regard to the diagnosis of this disease. W. L. SOMERSET (N. Y. Med. Jour., Nov. 21, 1903), furnishes some very helpful hints in regard to the differential diagnosis of the milder cases, which are, as a rule, the ones which give rise to the greatest difficulties in diagnosis. Varicella is the disease which causes, perhaps, the most confusion, for there are some cases of this affection which closely simulate variola. Varicella can vary from an eruption most abundant to a few scattered vesicles or pustules. In many cases it invades the palms and soles of the feet and may attack the mucous membranes. The patient may also be very sick with considerable temperature. If, however, in variola the lesions are abundant they will be most so on the face—in varicella, on the trunk. Variola does not produce vesicles in twenty-four hours. Varicella is seldom seen before vesicles appear, and if so the diagnosis cannot be made. Varicella vesicles are translucent, the epidermis covering being very thin. They are never umbilicated, but when beginning to dry down they may be covered by apex crusts which require close inspection to be distinguished from umbilications. Varicella has no papular stage. The elevation of a chickenpox lesion is due, from the start, to the pushing up of the outer epidermis layer by serum, and this occurs within the first twenty-four hours. Concerning lesions succeeding each other in point of time, so that early and late appear side by side, it can only be said to be usual in one and exceptional in the other. In general, when the decision rests between these two diseases, if it is variola, the pathognomonic lesions will be found upon the face and extremities; if varicella, on the trunk. A face invaded by variola, confluent in the macular stage, may resemble measles, but there is no photophobia, no lacrymal flow, the invasion is shorter and the symptoms remit as the eruption appears. A careful examination of the history, the individual lesions and their site ought to differentiate all cases of variola from the pustular syphilide. Smallpox of to-day has not acquired any new capabilities, but it simply fails more and more to live up to its former standard. It may all be accounted for by diminished virulence of the contagium or diminished susceptibility of the patient.

Pulmonary and Cardiac Disturbances Accompanying Diseases of the Biliary Passages.—There have been observed many cases of biliary colic in which the cardinal symptoms of the affection such as pain on the right side and the like have been absent; the attacks being accompanied by cardiac or pulmonary phenomena, such as asthma, disturbance of the pulse rate and others. In some cases there even appeared an insufficiency of one of the cardiac valves, which, however, disappeared with the cessation of the attack. K. P. ROUSSK (Prakt. Vrach, Oct. 18 and 25, 1903), reports three cases of biliary calculi in which these reflex cardiopulmonary disturbances were quite marked during the attacks of colic. Thus one of them suffered from very severe dyspnea, during which there was a high degree of oxygen hunger. It is of interest to note that physical examination during one of these attacks of dyspnea failed to detect any difficulty in the ingress of air to the lungs. The heart showed an enlargement principally of the right ventricle, accentuation on the second pulmonary sound, and insufficiency of the mitral valve. As regards the pathogenesis of these disturbances the author considers them under three heads: Mechanical, poisonous (intoxication), and reflex. Of these he regards the last as of the greatest importance. It is considered that the mucous membrane of the biliary ducts serves as the starting point of the reflex act. The muscles of the biliary ducts and sphincter at the junction of the ductus choledochus and the duodenum are innervated by the vagus and sympathicus. This was proven experimentally, as well as during a laparotomy, when the operator by manipulating the region about the ductus choledochus caused repeatedly cessation of the right pulse, which reappeared as soon as the manipulations were stopped. The sympathetic is thought to be the path through which the reflex travels. In the absence of any causative agencies in the lungs and heart in certain cases of dyspnea the author advises to remember the possibility of cholelithiasis as the underlying cause of the condition.

Cysts of the Pancreas.—In an extensive paper, P. LAZARUS (Zeitsch. f. klin. Med., Vol. 51, Nos. 1 and 2) distinguishes five common varieties of pancreatic cysts. The gastrohepatic form, where the cysts develop between liver and lesser curvature, is rare. The dulness will here merge into the hepatic or cardiac dulness and with continued growth the cysts will fill up the lesser mental cavity and even extend through the foramen of Winslow. Trauma is the usual cause here, since the portion from which these cysts originate, the upper and anterior parts of the body, are exposed to injury more than other parts. The development in so unusual a direction is best explained by pathological and physiological adhesions, with the stomach, which prevent a downward extension. Sometimes the position is distinctly subphrenic, when adhesions to the diaphragm and vena cava are common. The retroventricular variety is still less frequent and especially unsuited for operation. Perigastritis and peripancreatitis generally present upward or downward growth. The typical pancreatic cyst is the gastrocolic species, since the natural tendency for all growths from the pancreas is into the omental bursa. The stomach will cover the upper and the colon the lower segment. In a fourth form the cyst extends into the transverse mesocolon and depending upon the position of the transverse colon, three subvarieties may be distinguished: the intermediary, superior and inferior. Lastly a prevertebral type is recognized, where the growth is downward in front of the vertebral column and kidneys. The most infrequent starting-point of cysts is the head, since the secretion can generally find an exit through the accessory duct if the main duct is blocked. Compression of the duodenum is common here and a sudden increase in volume through hemorrhage may lead to jaundice and acute intestinal obstruction. Edema of the lower extremities, owing to venous obstruction, has been noticed, and ascites from portal thrombosis may develop. Occasionally the right kidney is displaced and compressed, and rupture into the intestines may take place. Cysts of the body readily press on the stomach, colon and celiac plexus. Cysts of the tail are most common, are usually movable, and may have a pedicle so that they sink into the lower abdomen. Cysts with epithelial lining may be definite neoplasms, and here the cystoma glandulare proliferum is the best studied type. They may also result from retention secondary to interstitial pancreatitis, or from degeneration after postinfectious acute pancreatitis. False cysts, on the other hand, have as their most common cause softening, autodigestion after trauma and discharge of secretion and blood into the omentum after rupture. The remaining pancreatic tissue is often altered considerably; even in experimental cysts the surrounding tissue is much changed by interstitial inflammation or necrosis. The

contents of the cysts are said to be characteristic in that they contain pancreatic fluid, but all three ferments are detected but rarely. The diastatic ferment is most common, the tryptic least, since it is used up in digesting blood and tissue-shreds. Even if it occurs in the fluid withdrawn from an obscure cyst, this does not prove the pancreatic origin of the latter, since fluid from ovarian cysts may occasionally digest fibrin. Traumatic cysts need not always contain blood, since complete digestion and absorption often occurs in several weeks. Other common ingredients are serum-albumin (up to 2 per cent.), serum-globulin, mucin, pepton, and, more rarely, cholestrin, leucin, tyrosin and sugar. The sediment consists of epithelium, fattily degenerated round cells, fat crystals, leucocytes, altered red cells, pigment, mucin and salts. With exception of a few congenital cases, the most common etiological factors are trauma and chronic indurative changes, secondary to gastroduodenal catarrh, cholelithiasis, arteriosclerosis, alcoholism and syphilis; the acute infectious diseases and pregnancy play a less important part. The development is occasionally latent until the neighboring organs are pressed upon and the functions of the pancreas itself suffer, but often the symptoms of the primary disease precede. Where diabetes is present, digestion is seriously interfered with, so that the stools are rich in fat and undigested muscle-fibers, but such stools are by no means pathognomonic, since fat may be absent in advanced cases and muscle-fibers may also occur in normal feces. The earliest and most constant symptom is pain; it may persist for years before the real condition is suspected, and is generally localized where the tumor develops. Occasionally the pains resemble gastric crises and they are especially severe where stones are present. Other important signs are intermittent increase and disappearance of the tumor and emaciation, while salivation was not observed. The most marked pressure symptoms occur with cysts of the head; they are responsible for the large number of gastric and intestinal complaints, which are invariably present. Rare complications are compression of the choledochus, with icterus and colic; of the portal vein with ascites; of the abdominal aorta with pathological murmurs and pulsation and of the splenic vessels with splenic enlargement. Traumatic cysts are generally ushered in by signs of shock, hemorrhage and injury of other abdominal organs, especially the stomach, and they may be accompanied by large omental hematomata, which generally heal rapidly after they are evacuated. The processes of cyst-formation and induration may here require many years. A rare complication is displacement of the ureter; a most dangerous one, suppuration and rupture of the cyst. Suppurative peritonitis is not due to discharge of pancreatic fluid into the peritoneum, since this is aseptic, but invariably to bacterial infection from the blood or gastro-intestinal tract.

SURGERY.

Functional Renal Diagnosis.—Concerning cryoscopic renal diagnosis, the opinions are still very much divided and enthusiastic reports alternate with more conservative articles. The paper of A. Göbell (Münch. med. Woch., Nov. 17, 1903) belongs to the latter class, for its author had some experiences which make him doubt that absolute reliance in the method is safe. The character of the food and the amount of fluid ingested seem to have a marked influence upon the freezing-point, but even if the diet is simple and absolutely uniform the figures vary within very wide limits. Several cases are reported where the wrong kidney would have been extirpated, if the molecular concentration alone had been taken into consideration. Much more satisfactory results are obtained if attention is also paid to the daily amount of urine and if renal activity is expressed in so many daily molecules. In all cases the diet should be controlled and the catheters should be introduced a definite period after a meal and left in position for at least two to three hours, since fluctuations are very common. At best the method is only approximate, but, though troublesome, it offers valuable aid in conjunction with other data.

Improvements in Narcosis.—A series of articles on narcosis is contained in the Münch. med. Woch., Nov. 17, 1903, which give a good account of the modern tendencies in this important specialty. H. Fuchs says ether is again taking the place of chloroform, since it was shown that the ideal ether narcosis is one not accompanied by suffocation and not necessitating the use of a large amount of the drug. The best method at present is the following: The patient first receives a dose of morphine half an hour before the operation. In case of laparotomies it is best to substitute codeine (1 to 2½ grains), since this is less liable to interfere with peristalsis after the operation. The patient is then etherized, drop by drop, with an ordinary chloroform mask. The musculature is generally relaxed in ten to twenty minutes after the use of one to two ounces of ether. Sometimes it is desirable to hasten the first stage by giving a few drops of chloroform after the ether has sufficiently stimulated the heart. The best position for the head is that of overextension by means of a pillow under the shoulders. The after-effects are exceptionally mild, and collapse during operation is almost impossible. C. Hofmann also looks upon the drop-method of etherizing as the narcosis of the future; he believes it approaches the ideal in every way. C. Hartog has a few words to say in favor of the morphine-scopolamine method which he considers free from danger if used properly, and if followed by ether-narcosis. Half a milligram of scopolamine ($^1/_{120}$ grain), and one centigram ($^1/_6$ grain) of morphine are injected ½ to 1 hour before operation, when the patients will invariably go to sleep with a minimum amount of ether and will exhibit none of the usual disagreeable symptoms. B. Korff employs twice the amount of scopolamine and ⅓ grain of morphine distributed over three doses given 2½, 1½, and ½ hours before the operation, and generally dispenses with other anesthetics. Pulse and respiration are affected only slightly, salivation is moderate, and the intestines and urine are not affected, since the bad effects of each drug are paralyzed by the other. Supervision is hardly necessary, though sometimes the tongue must be pulled forward. The stomach need not be entirely empty before operation and small amounts of water may be given soon after, as they do not provoke vomiting.

Traumatic Aneurism of the Subclavian, Produced by Fracture of the Clavicle.—Aneurism of the subclavian artery is rare among surgical lesions. When the condition has been brought about by fracture of the clavicle, its rarity is so great as to make the condition almost anomalous. William Taylor (Annals of Surgery, Nov., 1903), reports a case of this complication. It is remarkable that injury to the bone so frequently leads to arterial or venous rupture, and likewise remarkable, in view of the proximity of the apices of the lungs and the cords of the brachial plexus, that these two should be comparatively immune from injury. In the Lancet of July 6, 1850, Sir Robert Peel is reported to have died from an injury to the subclavian vein, due to fractured clavicle. As in probably all cases, there was here a comminuted fracture of the clavicle. The English and French lit-

erature contains only 10 or 20 cases of injury to the nerves and 5 cases of injury to the artery. There are many others recorded which terminated fatally, but which were associated with crushing injuries, or were lesions produced by bullets or other penetrating missiles. In these cases the complications have been attributed rather to the passage of the bullet or sabre, as the case might be, than to the fragments of the broken bone. Furthermore, it is probable that in the majority of these cases not alone is the clavicle broken, but the first and second ribs as well. The bone spicules, if such existed, having arisen from the ribs, rather than from the clavicle. The case reported by Taylor was one of the few which has been cured by operation. It was decided to place a temporary ligature on the first portion of the subclavian. An incision was therefore made around the inner end of the clavicle and the bone was divided two inches from its end and the part resected. The encroachment of the tumor on the small space occupied by this portion of the vessel gave rise to insurmountable difficulties. Recourse was had to an opening of the sac and attempt to secure the injured vessel. Accordingly the middle third of the clavicle was removed, so that digital pressure might be applied directly. The tumor was incised and the clots turned out. It was impossible to pass an aneurism needle, therefore forceps were applied to the opening in the artery. The convalescence was uneventful, the forceps having been removed on the twelfth day. The patient has not yet entirely recovered the use of his arm, but power is gradually returning.

New Method of Intestinal Union.—Two important points in the problem of intestinal union are still unsettled. The first is the question of the penetration of all coats of the intestines, and second the use of a continuous or an interrupted suture. J. SHELTON HORSLEY (Annals of Surgery, Nov., 1903) details the steps of his operation as follows: Intestinal clamps are placed, the mesentery is incised, and if need be, resected. The forceps that clamp the vessels are also made to include both layers of peritoneum as they separate from the mesentery to encircle the bowels. The tissue within the bite of the forceps is ligated with fine silk so covering the bowel, which is usually devoid of peritoneum. The bowel is then divided and the convex borders placed in contact and held there with forceps. Both walls of the intestines are now transfixed with No. 2 braided silk, about half-way between the mesenteric insertion and the forceps. This is tied. Part of the intestinal walls forming a crescentic area, the center of which is held by the forceps, is now cut out, and the cut edges sutured through and through. The needle is then thrust directly through the intestinal wall close to the right of its last puncture and emerges from the serosa. The character of the stitch is now changed to a Cushing right angle continuous suture, penetrating all coats and inverting the margins. Firm traction is maintained on the thread. When the first knot is reached it is invaginated and the suture continued by two more insertions of the needle. After this suturing is completed, scarcely any of the thread can be seen. The mesentery is then sewed up with a continuous suture. Nineteen dogs were operated upon by this method without a death. Evans has demonstrated that the danger from stricture following intestinal resection is overrated. Owing to the excision of the crescentic area, the diameter of the intestine at the point of union is greater than its normal size. The author believes the continuous suture is by all odds preferable to the interrupted. The operation can be done in eight minutes. The results of hydrostatic pressure on the unions obtained by this stitch, show that a suture through all coats is stronger during the first six days than one including the submucosa only. The Connell method stands more pressure at the end of the first and the sixth day, the new method stands as much as the Connell during the critical time of intestinal union, which is the third and fourth days.

Dislocation of the Ulnar Nerve.—Only 15 cases of this lesion had been reported, and until the present paper, no summary had been made. FARRAR COBB (Annals of Surgery, Nov., 1903) analyzes these and adds a case of his own. His conclusions are first, that the operation for this rare but disabling lesion give every chance of cure. Second, it is only in the most severe cases of dislocation that operation should be undertaken, and then only for the symptoms caused by the dislocation rather than for the lesion itself. Third, the steps of the operation are as follows: A curved incision 3½ inches long, midway between the olecranon and the tip of the internal condyle. The fibers of the triceps muscle should now be dissected up and removed from the groove previously and normally occupied by the nerve. The nerve is now placed in its groove, and the fibers, together with the portion of the fascia and the triceps are carefully sutured to the fascia of the flexo-carpi-ulnaris. The arm is put up in extension on a straight internal splint. There should be no pain after the operation. At the end of two weeks, the straight splint should be substituted for a right angle splint for one week. Active motion of the arm may be allowed after four weeks.

GENITO-URINARY AND SKIN DISEASES.

Multiple Zona.—Cases of symmetrical bilateral "herpes zoster" are extremely rare, but there are certainly many in which the eruption appears in the distribution of more than one nerve. Of 231 cases of zona seen by P. FABRE (Le Progrès Médical, Oct. 24, 1903) not one was symmetrical and only one bilateral, this involving a right intercostal space, and the back of the left thigh along the sciatica. There were duplicate unilateral zonas in four cases, one affecting the second, third and fourth intercostal spaces and the arm, the other three the lumbo-inguinal region and the corresponding thigh. Of bifurcated zonas there were seventeen, and four in which there was a true trifurcation. Zona, is, therefore, not always a single line or band, nor is it an eruption always limited to the course or distribution of a single nerve.

Choice of Operation for Hypertrophied Prostate.—Operations upon the prostate gland are no longer looked upon with so much dread as formerly and there is little doubt but what they will soon be considered within the province of most of our able surgeons. W. MEYER (Med. Rec., Oct. 24, 1903) gives his experiences with the various operations upon the prostate during the past five or six years, and now believes that those operations making a direct attack upon the enlarged gland are preferable to those aiming to exert an indirect influence. Operations upon the testicles and vas deferens should be done only as a very last resort and only after a direct attack has first been made. There are two useful procedures for the direct treatment, viz., prostatectomy and galvanocaustic prostatotomy (Bottini's operation). If the gland can be removed by operating from below, this procedure deserves the preference, were it for the sole reason that the wound which is made for shelling out the gland can be at the same time used for drainage. Besides this, perineal prostatectomy has the advantage of permitting operation under the operator's eyes. In selecting the method indicated in the given case we must individualize and be guided by anatomic,

pathologic and social conditions. He almost invariably recommends the cutting operation in patients with a large hard gland, also in patients with a gland of medium consistency if they seem strong enough to stand the operation and general anesthesia. He further advises protatectomy when the median lobe is present or in patients who are desirous of being relieved of their trouble at one sitting at all hazards. If the gland is soft and compressible, particularly if not palpable by rectum (the cystoscope haveing determined the diagnosis); if the patient is old and run down, he advises the Bottini operation, making the family fully aware of what may be expected. This does not preclude the possibility of a subsequent prostatectomy if necessary, and usually in itself secures good results at much less risk to the patient's life. Surgeons should, therefore, familiarize themselves with both operations in order to be in a position to do justice to their patients, and to insure that debilitated men who seem unfit subjects for the more radical operation may not be at once relegated to catheter life.

Urticaria Medicamentosa.—A hitherto unnoticed sequeln from the use of suprarenal extract is reported by A. ROSENBERG (Berl. klin. Woch., Oct. 12, 1903). The patient, a young woman in good physical condition, presented what appeared to be symptoms of an accessory nasal sinusitis. A small swab saturated with suprarenal extract was applied to the swollen inferior turbinate. It brought on an unpleasant disturbance of smell and within a few hours was followed by a diffuse urticaria extending over the trunk and arms. This disappeared after a short time, but about a week later, when the treatment was repeated, the same trouble reappeared. Swabs saturated with water or cocaine failed to produce the same effect. The author believes that this urticaria was caused either by the absorption of the drug or was a reflex disturbance brought about by an irritation of the olfactory nerve, the patient complaining of an unpleasant sensation of smell at the time when the suprarenal extract was applied.

Operative Cure of Sterility from Obstruction at the Epididymis.—Experimental work upon dogs has shown that when the vas was cut a short distance from its origin in the epididymis and an anastomosis of this divided end with the heads of the epididymis was made subsequent ejaculations were found to contain apparently normal spermatozooids. E. MARTIN (N. Y. Med. Jour., Oct. 10, 1903) has learned by morphological study of the human spermatozooid taken from the rete testis, the upper part of the epididymis and the vas that these spermatozooids seemed to undergo a developmental change in their progress through the organ, and he was therefore a little doubtful concerning the ultimate success of such a transplanting operation in man. An opportunity for testing the result of such an operation was given him by a man who had been married for several years and to whom no children had been born. The wife had been subjected to dilatation and curettement before it was discovered that her husband was sterile. He had suffered from two severe attacks of gonorrhea, one accompanied with bilateral epididymitis. Repeated examination of the seminal fluid resulted in the finding of only two or three poorly formed spermatozooids on one or two occasions. Operation was decided upon, and the vas of the left side was freed at about the level of the top of the testis, and, by means of a sharp-pointed pair of scissors, a slender bistoury, and a grooved director, its lumen was opened by a longitudinal cut a quarter of an inch long. A portion of the head of the epididymis was then picked up and excised. A few minute whitish drops at once appeared on the cut surface, made up mostly of spermatozooids. Into the wound of the epididymis the vas was implanted by means of fine silver wire and the skin closed by catgut. Examination of the spermatic fluid subsequently showed a goodly number of spermatozooids, and 281 days after resuming marital relations his wife was delivered of a normal girl baby.

Value of Albuminuria in Differentiating Pyelitis from Cystitis.—There are many cases of pyelitis in which the local symptoms are so indefinite that a diagnosis becomes very difficult. Even a careful microscopical examination may disclose nothing characteristic, for it is well known that no great reliance can be placed upon the so-called epithelial cells of the pelvis. Cystoscopy, ureteral catheterization and the freezing point of the urine are all very helpful means of diagnosis in the hands of the trained, but these means are by no means accessible to the ordinary physician. T. R. BROWN (N. Y. Med. Jour., Oct. 17, 1903) has found that the amount of albuminuria is of great help in differentiating a cystitis from pyelitis. Pyemia due to a cystitis, even if of high grade, is associated with but a small amount of albumin if the urine is examined soon after catherization, and if the pyemia is not accompanied by hematuria. On the other hand, in all cases of pyelitis, even if the pyemia is slight, there is always, or at least almost always, a considerable quantity of albumin present. A microscopical examination will easily disclose the presence of red blood cells if they are in sufficient number to be of any importance in causing the albuminuria.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Action of Purin Bodies.—The purin bodies normally excreted in the urine (guanin, hypoxanthin, uric acid) were injected in medium doses into rabbits by J. W. HALL (Virchow's Archiv, Vol. 174, No. 2) in order to study their effect upon the organism. Considerable loss of weight followed, the blood-pressure and size of the heart were not affected and in the blood the lymphocytes, multinuclear leucocytes and basophile cells were augmented in number. A histological examination of the heart, large arteries, lung and nerve-cells gave no change; the kidneys showed slight hyperemia, slight thickening of the intima of the smaller arterioles and beginning degeneration of the secreting epithelium. In the bone-marrow very many lymphocytes and nucleated reds were found, and cellular degeneration and vacuolization occurred in the liver. It is possible that some of the changes of chronic interstitial nephritis in man are due to retained purin bodies.

Disintegration of Rabid Brain Substance.—Although no organism causally related to rabies has been demonstrated in the tissues of animals dying of this infection, according to J. O. W. BARRATT (Proc. of the Royal Soc., Oct. 31, 1903), yet it has long been supposed that the virus consists of an organism, since it is capable of indefinite increase when passed from animal to animal. This supposition is also strengthened by the following experiment performed by the author: The rabid brain substance of a rabbit was disintegrated at the temperature of liquid air for from half to one hour, and it was found that this abolished its virulence. It was now necessary to ascertain whether any substance was produced or set free during disintegration, which was in itself capable of destroying "virus fixe," since it is known that immunizing substances are formed by animals infected with, or immunized against, rabies. Intracerebral injection of a mixture of disintegrated and virulent brain substance, in a preparation of 5 to 1, practised upon rabbits, was followed by rabies, thus showing the absence of a rabicide substance in disintegrated rabid brain. MacFayden proved that exposure of rabid brain-substance to the temperature of liquid air for three months fails to deprive it of its virulence.

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RESPONSIBILITY FOR TYPHOID FEVER.

THE year just closing has been remarkable for its epidemics of typhoid. Not only has the number been large, but there have been two outbreaks which must be regarded as the greatest explosions of typhoid fever which this country has seen. At Ithaca there were 1,300 cases, and at Butler, Pa., according to an exhaustive report by Dr. George A. Soper, published in the *Engineering News* of December 24, the number of cases to December 17 was 1,270, with a prospect of more.

That typhoid is increasing in sporadic and endemic, as well as epidemic, form, is a fact which is attested by the newspapers and the reports of health boards; and this in the face of the fact that there is no communicable disease whose channels of infection are more clearly understood and can be more securely guarded. That public interest in its prevention is sporadic and ephemeral is not only to be deprecated but it should be set down as a national crime.

Typhoid epidemics are usually due, in the first place, to neglect on the part of purveyors of water and milk, and incompetence on the part of boards of health. Proper sanitary surveillance in these directions is capable of affording complete protection against typhoid, but sufficient care is rarely exercised to keep public water and milk supplies free from the danger of infection. After reading the article on "The Management of Typhoid Fever Epidemics," which appears in this issue, it seems to be a matter of chance that epidemics are not more numerous than they are. The public should recognize that it is the business of the purveyors of water and milk to take the measures necessary for their protection and the business of boards of health to see that such measures are faithfully carried out. The growing frequency of typhoid epidemics indicates that legal action for criminal carelessness in failing to exercise due diligence is apparently needed to bring water works officials, dairymen and boards of health to a proper sense of their responsibilities.

In the second place, typhoid fever spreads to a needless extent in households, through the want of a knowledge of the preventive measures which should be adopted. Such precautions as are taken in families in which a case of fever occurs are usually those which can be gleaned from the hasty instructions of the physician, and too frequently consist of the perfunctory use of a certain patented brand of disinfectant. If physicians would stop to consider that many of these so-called disinfectants are not only adulterated and unscientific in character, but ineffective in action and far inferior to simple reagents which can easily be prepared at home, they would probably hesitate to give them an endorsement. Typhoid fever spreads in households chiefly because disinfection, which is both necessary and sufficient as a protection against the transmission of the disease, is usually a farce.

There is a distinct lesson in all this. It is clear that reforms are needed at the water works, dairy and sick room. Prevention must be practised and prevention must be taught. Public and domestic hygiene should be recognized as a factor in education. Our universities, colleges and medical schools, which now generally omit this subject from their curricula or teach it in a feeble and perfunctory way, should establish chairs and departments of hygiene. With a settled purpose to accomplish this, means can be found for securing the funds. It is said that philanthropists of enormous means are seeking opportunities for the investment of money where it will be useful in reducing the sum of human suffering and will advance the best interests of mankind. No better opportunity for such noble work could be offered to men of wealth than the founding of chairs of hygiene in our medical schools and universities.

AUTOMOBILING AND NERVOUS MANIFESTATIONS.

It is evident from recent reports in the medical press, especially in France, where the practice of automobiling is more common than in this country, that in the very near future physicians are to be called upon to treat a number of nervous symptoms traceable to the excitement and mental tension of rapid traveling with the emotional repression necessary to secure a reasonable feeling of enjoyment, while speeding rapidly with risks and dangers constantly at hand. The most distinctive symptom complex that has thus far been described is a neurosis of anxiety.

In a recent study containing some interesting observations on the neurosis of anxiety in the *Archives de Neurologie* (Vol. 15, 1903, No. 89), Dr. Hartenburg describes a typical case that may prove a helpful guide to those who are brought in professional contact with the affection for the first time. The automobilist patient in this case had no difficulties as long as he confined his riding to short trips not far from his home; when he attempted long journeys, however, symptoms developed. In spite of the great fatigue consequent upon the close, prolonged attention in guiding his machine the patient was able to continue his riding for three successive days, but on the fourth day he suffered from severe symptoms. There was pain in the epigastric region, and the general nervousness incident to extreme emotion. This was followed by a chill, with chattering of teeth, shivering accompanied by palpitation of the heart and an overwhelming fear of sudden death.

These symptoms cleared up under rest and ordinary care. A three days' journey some months later was apparently completed in good condition, for the patient had a good appetite and was so naturally fatigued as to get to sleep promptly. After a couple of hours of sleep, however, he was awakened with an extreme sense of terror. As before, the main element of this was an uncontrollable sense of impending death. The palpitation of the heart was so severe that he felt sure his heart would break and that he would instantly die. A careful examination of his heart by medical consultants made afterward showed that there was absolutely no heart lesion. All the consultants agree that his symptoms were due entirely to the nervous condition induced by the emotional strain of automobiling, while the crisis of the case was brought on by acute nervous indigestion. The patient was advised to give up automobiling, and since then has had no recurrence of these attacks.

It is not only, however, as a result of automobiling, but also as a cause of certain of the phenomena of injudicious speeding in automobiles that nervous symptoms are to be brought to the attention of the medical profession. In the discussion before the Society of Hypnology and Psychology, reported in the November number, 1903, of the *Journal of Nervous and Mental Disease*, a number of medical experts testified that many of the reckless drivers of automobiles are really individuals who are under the influence of a sort of speed intoxication, until there is practically complete loss of self-mastery. Dr. Hachet-Souplet explains that the intense impressions which are borne in on a man by the consciousness of high speed entirely under his own control often carry him completely away, so that the worse side of his nature gains the upper hand, and combativeness, spitefulness and violence take the place of his ordinary qualities. Berillon suggests that there is a great analogy between the euphoria—the pleasurable sensations of speed and those produced by morphine. The sense of levitation that follows morphine is likely to be felt, particularly when traveling at high speed in the open air, and there goes with it constantly a lack of control of will power. Paul Magnin considers that the indulgence in speed is not unlike indulgence in tobacco or alcohol. It is an individual affair, and, as is well known, many persons are unable to keep from abusing these indulgences. Some are affected so as to be deprived of all power of moderation, even to the extent of losing their instinct of self-preservation.

It appears then that the new occupation of the leisure class may prove a fruitful source of study for the physicians of the twentieth century. In the meantime it would be well if precautions were taken as regards the physical and mental health of those who are permitted to drive automobiles on crowded streets, especially when the machines are of the twenty to forty horse-power type. There is more than a suspicion that some recent accidents at night have been due to defects of vision, or color-blindness, which prevented the drivers from realizing the dangers of excavations and obstructions guarded by red lights. It is clear that permission to drive such heavy machines should not be accorded to anyone who has ever exhibited any signs of mental disequilibrium, since it is almost sure that the excitement and mental strain of automobilism tend to bring on

the manifestations of lack of control so that even healthy persons find it hard enough to retain their true mental balance.

As with regard to nearly every other important innovation in modern life there is a medical side to automobilism, a question involving danger of loss of life and limb that has been very calmly ignored. So far, in this country, we have had but few reports of the neuroses caused by and consequent upon automobiling at high speeds. It cannot be that American physicians have been without experience. It is more probable that their attention has not been seriously directed to the conditions but that now we shall hear more of them.

THE TYPHOID COST OF THE PHILIPPINES.

ALL of our experiences with wars and campaigning outside of our own territory have cost us dear in deaths from diseases brought home, and distributed by the returning soldiers. During the Spanish-American war the unfortunate conditions that developed in the camps even at home proved serious by giving opportunities for the wide distribution of typhoid germs.

It is probable that some of the malaria of recent years, in districts formerly little affected by its germ, has been due to the same cause. Relapses of malaria are not uncommon in the spring-time and so the mosquito gets the chance to become inoculated by the malarial parasites and to spread them in a region never before infected. The epidemic of smallpox which occurred in this country during the two years following the Spanish-American war was undoubtedly due to the importation of this disease by the campaigners from Cuba and Porto Rico and its transfer to many parts of the country by these discharged soldiers. This has already cost many thousands of lives and the end is not yet.

During the last three years there has been a noteworthy tendency to outbreaks of typhoid fever which did not exist for at least a decade before the Spanish-American War. From a large number of the smaller towns throughout the country have come reports of the existence of typhoid fever in epidemic form. At least four university towns have been badly frightened by the presence of typhoid and one of them suffered severely from the ravages of the disease. There is a general feeling of insecurity with regard to typhoid that probably portends the occurrence of further epidemics in the near future. We now know that typhoid fever is not the result of unsanitary conditions in general, or even of the contamination of drinking water by sewage, or by excrementitious material from human beings unless those human beings have been suffering from typhoid fever. Unless the principle that typhoid fever never originates *de novo* is true, that is, unless there is an absolute connection of any given case with a preceding one of the disease, all our modern bacteriology is founded on a false assumption.

It is evident that a large number of scattered foci of typhoid fever have somehow come into existence in this country and that it is from these that the specific germs succeed in finding their way into drinking water or into milk or other food materials to cause the disease in new subjects. The only possible cause for this renewed activity and widespread distribution must be some special opportunity for infection incurred by many individuals in different parts of the country. The ideal opportunity for this unfortunate process has evidently occurred in the Philippines. Typhoid fever has been commonly epidemic there and during the last two years, many hundreds of discharged soldiers have returned to their homes in the smaller towns throughout the United States, while, probably, still the hosts of typhoid bacilli. It is possible at times that the attack of the disease during their campaigning may have been so slight that in the tropical climate, with the liability to passing fevers among the unacclimated, the affection may have been unrecognized. Furthermore in abortive attacks of typhoid fever, we do not know how long the patient's stools may continue to contain typhoid fever germs. We know that the urine has been shown to be infectious from the presence of typhoid bacilli for many weeks and sometimes for months after convalescence from the disease has been fully established.

It is very evident that, to the calculated cost of our new possessions in treasure and in soldiers there must be added the fatal results of these epidemics at home. The only possible advantage to be derived from the present unfortunate situation is to see that the lessons of these epidemics shall not be lost. We are now made sure that the length of time during which a convalescent from typhoid fever may continue to be a source of infection for others is indeterminate. The fact that typhoid bacilli may remain absolutely latent in the bone-marrow for many years after an attack of typhoid fever and then after the immunity fol-

lowing the original attack has passed off again become a source of danger, shows that there is much yet to be learned in this matter.

Another and even more important lesson is that the government shall take special care that returning soldiers may not prove sources of infection. It would seem that soldiers should not be allowed to go directly from foreign countries to their homes, but that their transfer to this country should be made some months before their discharge in order to be sure that the possibilities for the conveyance and distribution of infection to others shall have disappeared before they return to civic life.

The recent experiences in this country have taught us that war still remains a serious source of disease. Before the Spanish-American war it was thought that the development of sanitary science had reached a point that would enable the army medical department to preserve soldiers from epidemic disease. The idea was a complete illusion. The medical history of this country since the war, shows the necessity for precautions after men have been assembled in large bodies in tropical and unsanitary climates and must eventually add another chapter to the science of military hygiene. Let us hope that the lessons thus afforded shall not be neglected on the assumption that these calamities are due to other causes and not to the perfectly corrigible elements in our present conditions as an expanding nation.

ECHOES AND NEWS.

NEW YORK.

Bacteriologist to the Orange Hospital.—Dr. Ellen L. Lowell, of New York, has been appointed chief bacteriologist at the Graves Pathological Laboratory of the Orange Memorial Hospital. She will have entire charge. Dr. Lowell is a graduate of Leland Stanford University, and received her degree of M.D. from Johns Hopkins University. She is a member of the noted Massachusetts Lowell family.

Physician Hurt in Runaway.—Dr. N. E. Landon, of Newark, N. Y., one of the best known physicians in Central New York, was seriously injured on Christmas day in a runaway accident. He was riding behind a team of young horses when they became frightened at the cars and ran away. The doctor was thrown out and severely cut and bruised about the head and face. Medical assistance was summoned from this city, and it is believed that he will recover, although he is in a very serious condition.

New York's Low Death Rate.—Dr. William H. Guilfoy, Registrar of Records of the Health Department reports that the percentage of deaths will probably be found to be 18.15 for each 1,000 of the population. The estimated total deaths from all causes in the greater city for the year was placed by Dr. Guilfoy at about 67,000. The percentage for the year 1902, the lowest recorded up to that time, was 18.75. The union of all the boroughs into the greater city, he said, tended to lower the average of the death rate, because the rate is always higher in Manhattan and the Bronx than in the outlying boroughs. Dr. Guilfoy admits that not all the credit of the low death rate is due to Commissioner Lederle's administration of the department, efficient as that had been, adding: "It is in a great measure the fortunate dispensation of the power which rules the weather, and which holds the prevalence of diseases in check. The last two summers were remarkably cool, for example, very much decreasing the death rate among infants."

Medical Examination in Squadron A.—The following questions were asked the candidates for promotion as medical officers of Squadron A, by the headquarters examining board at its recent session. The board consists of Colonel George R. Fowler, of General Roe's staff, the Surgeon-General of the State of New York, Major Henry P. de Forest, Surgeon of the Thirteenth Regiment, Heavy Artillery, and Lieutenant Albert F. Brugman, Surgeon of the Second Battery, Light Artillery:

Anatomy.—(1) Describe the surgical anatomy of the carotid artery. (2) Describe the shoulder joint. (3) Describe the motor area of the brain.

Surgery.—(1) Discuss the question of probing in gunshot wounds of the abdomen. (2) Describe the symptoms and surgical treatment of obstructive jaundice. (3) A soldier in action receives a fracture of the femur in its middle third. Describe an improvised splint to be used in the field, and then the best appliance to be used when he reaches the permanent hospital.

Materia Medica.—(1) Name the principal alkaloids of opium, belladonna and of nux vomica. Give dosage of each. (2) What is the dose and composition of salol? (3) Write a prescription for the mixed treatment of syphilis.

Practice.—(1) Describe somewhat in detail the treatment of uremic convulsions. (2) What cardiac symptoms arise from the overuse of tobacco? How would you treat these? (3) Mention the principal respiratory diseases to which soldiers in camp are subject. Describe in detail the symptoms, diagnosis and treatment of one of them.

Camp Sanitation.—(1) Describe the location, construction and care of latrines in an army camp. (2) Describe in detail the best method of caring for kitchens and garbage in camp. (3) What camp diseases are in great measure due to pollution of the water supply and what means of prophylaxis should be employed?

Dr. Russell Bellamy was the successful candidate and has just been commissioned Captain and Assistant Surgeon of Squadron A, N. G. N. Y. He has been a member of the squadron for eight years, and was a private in Troop 2 for three years.

Pneumonia Epidemic in New York.—Dr. Herman M. Biggs, medical officer of the Department of Health, is making a careful study of the steady growth of pneumonia in this city. One result has been the adding of the disease to the list of those which must be reported to the bureau of contagious diseases as communicable. The records of the department show considerable increase in the number of cases of pneumonia this year over last year. In the week ended Nov. 28, last year, there were 116 cases; this year in the corresponding week there were 164 cases. For the week ended Dec. 12 there were 172 cases, against 105 last year. For the week ended Dec. 19 there was an increase of 68 cases over

the corresponding week of last year. Pneumonia increased its number of victims to 272 during the week which closed Dec. 28. This is the record for any one week in the history of the greater city, as it exceeds by three the number of deaths recorded last week from the disease. During the corresponding week last year 216 deaths from pneumonia were recorded, and that was then regarded as an unusually large number.

"We look," said the Registrar of Records in the Health Department, "for a lessening of the number if the present weather conditions continue. The deaths this week are further confirmation of the theory that pneumonia is an infectious disease, as in the previous weeks the thickly populated and crowded sections show the greatest number of deaths. The public should be especially careful during the present epidemic to avoid colds and to use every possible means to preserve the general health."

PHILADELPHIA.

Entertainment of Dr. Woodhead.—During his stay in this city, Dr. G. Sims Woodhead, of England, who delivered the third in the series of lectures under the auspices of the Phipps Institute, was entertained by several of the prominent physicians. On Saturday evening Dr. Joseph McFarland gave a dinner in his honor at the Bellevue Hotel. On Monday Dr. W. M. L. Coplin entertained him at luncheon at the University Club and in the evening he was given a dinner at the Rittenhouse Club by Dr. J. H. Musser. A reception followed the lecture on Tuesday evening and on Wednesday Dr. Ravenel, whose guest the distinguished visitor has been, gave a reception in his honor.

New Test for Pharmacists.—A decided innovation will be made by the State Pharmaceutical Board at the next examination which will be held in this city January 16. In addition to the usual written examination those applying for pharmacist's certificate will also be obliged to pass a laboratory test. Those applying for the certificate of qualified assistant will be given only a written examination as heretofore. The entire board will attend as the examination will be held only in the one city instead of at Pittsburg also as has been the custom formerly.

Drug Trust to Raise Prices.—The Philadelphia Association of Retail Druggists will after January 1 put into operation its new price schedule for proprietary articles. During the past year efforts to obtain full prices for ten-cent goods have been so successful that efforts will be made to secure the same scale for 25 and 50-cent articles. Several of the largest dealers have refused to join the association and persist in selling goods at their own price. Attempts on the part of wholesalers to refuse to supply them with goods have been met with threats of resorting to legal redress and the trust has been obliged to proceed very cautiously.

Physicians Asked to Aid in Stamping Out Smallpox.—Director Martin has sent a copy of the following letter to each physician in the city: "The conditions in Philadelphia are such as to threaten a grave epidemic of smallpox. Can you help in the preventive work by urging upon your patients and all the members of their households immediate vaccination of all unvaccinated persons, of all children over 12 who have been vaccinated successfully in infancy, of all adults who have not been vaccinated successfully within the last five years?"

Pathological Society.—The annual exhibition meeting of the Philadelphia Pathological Society will be held on the evening of January 14 in the Mutter Museum of the College of Physicians. Gross and microscopic specimens of all departments of human and animal pathology will be on exhibition.

Railway Accidents During 1902.—During the year ended June 30, 1903, a total of 26,503 persons were killed or injured on the steam and street railways of Pennsylvania. Of the passengers carried on steam cars 98 were killed and 2,713 injured; among the employes 1,323 were killed and 14,059 injured; of other persons 2,298 were killed and 2,716 injured. These figures show, as compared with last year, a reduction in the number of injured of 3,292; an increase in deaths of 446. On the street railways the killed and injured were as follows: Passengers, 41 and 1,727; employes, 21 and 252; other persons, 165 and 1,090.

CHICAGO.

New Buildings for Dunning.—The County Board of Commissioners has decided to erect at Dunning, Ill., a cottage for working patients, as well as a new morgue and pathological laboratory. A children's building will also be erected at the Cook County Hospital.

Children's Department for Provident Hospital.—A Children's Department has been established by this institution. The patients will be cared for by the colored nurses. In connection with this department a clinic has been instituted on Tuesdays and Fridays, from 2 to 4 P.M.

Appointment of Dr. Charles Whalen.—The appointment of Dr. Whalen to the Cook County Hospital has been approved by the Board of Commissioners of Cook County. Dr. Warren H. Hunter has been reappointed as County Physician, and Dr. V. H. Podstata has been reappointed as Superintendent of the Cook County Institutions at Dunning.

Cook County Hospital.—It has been suggested that the Council of the Chicago Medical Society take up for thorough discussion the present mode of appointment and of organization of the attending staff of the Cook County Hospital, with the ultimate object of securing for this important institution the advantages of a more permanent and more definitely organized staff than is possible under the elastic system hitherto in vogue. Every high-minded medical man in Cook County has looked forward to the time when the County Hospital will be in the hands of an attending staff organized according to the best ideals, and it is believed that the time is now ripe for an earnest, united effort of the recognized Medical Society of Cook County toward that end.

Influence of Weather Conditions on Mortality.—According to the bulletin of the Health Department for the week ended Dec. 19, 1903, the influence of the weather conditions of the last three weeks or so is already being reflected in the bills of mortality. The death rate for the week is 12.5 per cent. higher than that of the previous week, and very nearly as high as the average December rate of the previous ten years. An analysis of the figures in the statement of mortality indicates clearly that the weather and exposure to it at football games, during the street-car strike, in Christmas shopping, etc., is made responsible for the injuries. Thus, there is a 22-per-cent. increase in the deaths among the aged—those over sixty years. Deaths from the chronic diseases show increases of 10 per cent. each for consumption and heart diseases, of 11 per cent.

for Bright's disease, 65 per cent. for diseases of the nervous system, and 90 per cent. for cancer. The death rate may be expected to increase during the remainder of the month, and those suffering from common colds, catarrhs and similar slight affections of the respiratory system, all of which are almost epidemically prevalent, should exercise more care to prevent the development of tonsillitis, consumption and pneumonia. "Better secure medical attention now than later on in a sick bed," is the advice given by the Department.

GENERAL.

London's War on Rats.—The rat killers report satisfactory progress in their war against the rodents of the London docks. They have killed over 5,000 every month this year. The campaign opened when London had its bubonic plague scare and since then more than a quarter of a million of rats have been put to death. Aside from health considerations, this elimination is commended by the press of London on the ground that rats do an enormous amount of damage in the dock warehouses.

Meeting of Scientists in St. Louis.—The fifty-third annual meeting of the American Association for the Advancement of Science occurred in St. Louis during the present week, with between 700 and 1,000 members present. The first day's session consisted of addresses of welcome and responses. Dr. Ira Remsen, retiring president, called the meeting to order and introduced his successor, Carroll D. Wright. David R. Francis made an address of welcome. Dr. Remsen delivered a fine address on "Progress and Science." As is the custom, the Association was subdivided into nine sections and in these the most interesting work of the session was done.

Arsenical Poisoning in England.—There are some disquieting statements in the report of the Royal Commission on arsenical poisoning, which has been investigating all the circumstances of the extensive and fatal beer poisoning in the English midlands in 1900. It says that the number of persons who suffered was certainly 6,000, and probably considerably greater. Seventy deaths are known to have occurred; but it is believed that a large number of deaths certified as due to chronic alcoholism, cirrhosis of the liver, Addison's disease, or to "alcoholic," "peripheral," or "multiple" neuritis, were really cases of arsenical poisoning occurring before the nature of the epidemic was discovered. It is incidentally mentioned that the period of prevalence of poisoning was attended by a marked diminution of the birth rate in the localities chiefly affected. The report adds that there can be no doubt that a considerable proportion of the beer brewed in some parts of England before 1900 contained noteworthy quantities of arsenic, mainly derived from malt and from brewing sugars, and that the amount derived from malt must have varied greatly in different places. Malt had been shown to be subject to arsenical contamination from the fuel used in the drying kiln, and in a much greater degree when the fuel was gas coke than when other forms of fuel, such as oven coke or anthracite were employed.

Insanity among American Indians.—At the close of the first year's existence of the National Hospital for Insane Indians, at Canton, S. D., the first data ever collected about Indian insanity indicate that forced civilization is responsible for much of it. In its first year half the capacity of the hospital has been taken up by 34 inmates. In a few months the remainder of the rooms will have been taken, and additions will be necessary. But there will still be at large many Indians hopelessly insane, and it is believed that the ratio of insanity will undoubtedly continue to grow. Supt. O. S. Gifford and Dr. J. F. Turner, assistant superintendent and physician of the hospital, agree that the chief cause of insanity among Indians is despondency. Just as with the whites, brooding over troubles and disappointment undermines the Indian mind quicker than anything else. This is manifested in different ways, but most of these manifestations would have been improbable or impossible in the former wild life of the Indian. That brooding should follow when the Indians cannot have the employment of hunting or making visits at a distance and are even prohibited from indulging in their native dances is natural.

Moral Deficients among Children.—The theory of Dr. Still of London that evildoing in children is not "naughtiness" but "moral imbecility" has presented an absolutely new problem to the mothers of Great Britain. It must not, however, be supposed that every phase of infantile peccadillo must be labeled as due to "morbid moral defects." The whole question is purely one of degree. Broadly speaking, the ordinary so-called naughty child is not for the moment, at any rate, worthy of high-class medical consideration. On the other hand, the abnormally naughty child is by a consensus of scientific opinion to be considered as "morally deficient." In the opinion of another physician of wide experience children fell into two groups—the normally naughty and the abnormally naughty. Luckily, the abnormally naughty form a very small minority. He first cleared the ground by saying that children are not born with moral tendencies. The child of three years of age is simply a victim of emotions. It has no morals, but as time goes on accumulated accidents give it experiences which lead it to choose between wrong and right, even upon the lowest possible ground—that right pays and wrong does not. During the growth of some children, however, it is seen that they are not influenced by considerations of this kind. It may be shown in the most subtle way, or it may be perfectly plain to every one. The fact remains that they are not induced to do right by punishment. The difference in some cases is so slight in childhood that the doctor was certain that a large number never showed this taint sufficiently to call for any special comment, but when they grew up and restraints were removed they developed into criminals. One of the great difficulties in dealing with these children was the absence of these special signs, and in view of this the doctor acquiesced in the opinion of Dr. Still that all that could be done was to watch carefully and adopt a system of segregation.

British Cancer Research Fund.—The work of the British Cancer Research Fund, which is now well under way in its laboratories on the Victoria Embankment, London, and at an experimental farm in the country has been divided into four general subdivisions: (1) The experimental work on animals consists of a study of the malignant growths occurring spontaneously among them, and tests as to the possibility of successful inoculations with human cancer. It has already been established that cancer is extremely prevalent among domestic animals, dogs, cats, horses, cows, and pigs being especially prone to it. The inoculability of cancer from one animal to another has been accomplished, thus justifying the claims of several previous investiga-

tors. Experiments are now under way on the farm to determine the rôle which irritation plays in causing cancer. (2) The microscopic work consists of a study of the structure of malignant tumors in the light of their clinical history. Specimens are received from the London hospitals, from hospitals in the British colonies, and arrangements have just been completed for an exchange of specimens with institutions in the United States, France, Germany, Norway, and other countries. It is hoped in this way by keeping in touch with other laboratories to avoid the repetition and resulting loss of time of special lines of research in various parts of the world. (3) The statistical work compares and correlates the facts regarding the occurrence and mortality of cancer in various regions. The figures thus far collected seem to indicate that the alleged increase of cancer is apparent rather than real and is accounted for by greater accuracy in diagnosis. (4) Treatment. In this section the various remedies and proposed "cures" are tested. Thus far the experiments on the various light cures—Finsen, X-ray, radium, etc., indicate that they act simply as caustics. In the case of superficial rodent ulcers, considerable success has attended the use of X-rays. A study of the results obtained by the use of radium does not inspire much hope of its therapeutic future. Regarding a cancer antitoxin, it is stated that a formidable and practically unsurmountable obstacle is the lack of knowledge regarding the cancer toxin, or poison. Until this is obtained, the search for a curative serum is entirely in the dark. The fund still lacks $100,000 of the $500,000 capital which it was calculated would be required to maintain the laboratories. There seems no way in which money could be more usefully spent by wealthy persons for the benefit of mankind. No disease causes more terrible suffering, both mental and physical, and its victims are usually taken at the most productive period of life. The work at the London laboratories is international in scope, and deserves the support of all who can afford to give.

Carnegie Institution and Its Appropriations.—During the year just closed the Carnegie Institution, with its headquarters at Washington, has appropriated liberally to a wide range of scientific investigation. While a large part of the funds distributed by it has gone to researches in astronomy, geology, anthropology, etc., assistance was given to those branches of science more closely correlated with medicine as follows: W. O. Atwater, Wesleyan University, Middletown, Conn., $5,000 for experiments in nutrition; Arthur Gamgee, Montreux, Switzerland, $6,050 for a report on the physiology of nutrition; E. B. Wilson, Columbia University, New York, $1,000 for investigations in experimental embryology in Naples; Marine Biological Laboratory, Wood's Hole, Mass., $10,000.

OBITUARY.

Dr. SAMUEL WOODCOCK, of Manchester, England, died of apoplexy on December 12, 1903, at the age of sixty-four years. Dr. Woodcock was a prominent member of the British Medical Association and a forceful worker in all that pertained to medical politics. He was active in the reconstitution of the association, took a prominent part in framing the Midwives' Bill and many other medical acts that have become English laws.

Dr. DANIEL EMBURY KISSAM died at his home, at Huntington Harbor, Long Island, December 24. Dr. Kissam from 1848 to 1888 practised as a physician and surgeon in Brooklyn. He was a native of New York City, and was born Oct. 3, 1817. He was visiting surgeon to the Brooklyn Hospital, and perfected many contrivances for surgical operations. During the Civil War he volunteered as a surgeon and went to the front.

Dr. HUGH M. WALLIS, a leading physician of Terrebonne parish, La., died at Covington, La., December 27. He was sixty-nine years old, and a native of Kent county, Maryland, but a resident of Terrebonne for forty-one years. He was Mayor of Houma for several terms, Coroner of Terrebonne parish and owner and editor of the Houma *Times*.

WILLIAM NEWMAN, M.D., F.R.C.S., died in the Stamford Infirmary, England, in the seventy-first year of his age. Dr. Newman was for years one of the best known surgeons in the Midlands and held important offices in the British Medical Association.

Dr. WILLIAM H. A. YOUNG, one of Springfield's best-known physicians, was shot through the heart last Tuesday afternoon by a bullet from his rifle, which he was placing in his carriage previous to going hunting. The fatal accident took place just inside the stable doors, which were open, and was witnessed by his wife and several friends who were visiting in the home.

Dr. AUGUSTUS D. RUGGLES of 330 West Fifty-sixth Street, died December 27. He was sixty-three years old, and was graduated from the University of Pennsylvania in 1862. He was a member of the New York Physicians' Mutual Aid Association.

Dr. ROBERT BOOCOCK died at his home, 2,905 Clarendon Road, Brooklyn, on December 28. He was born in York, England, in 1833, and came to this country thirty-three years ago. He was a physician of the homeopathic school, and was also for many years an ordained minister in the Baptist Church. For the past twenty years Dr. Boocock confined himself exclusively to the practice of medicine.

SOCIETY PROCEEDINGS.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Sixteenth Annual Session, held at the Piedmont Hotel, Atlanta, Ga., December 15, 16 and 17, 1903.

The President, J. Wesley Bovée, M.D., Washington, D. C., in the Chair.

An address of welcome was delivered by Mayor Evan P. Howell, which was responded to by Dr. George Ben Johnston.

Study of the Prostate and Treatment of Prostatic Hypertrophy.—Dr. G. Wiley Broom, St. Louis, Mo., exhibited a number of hypertrophied prostates that he had removed. The author said that he had made approximately two hundred post-mortem examinations to investigate the condition of the bladder and prostate in each subject. He said it was generally believed by routine prostatectomists that all prostates had a capsule, but this was not true. His conclusions were (1) The position of the urethra in the normal state was always in the floor of the bladder; but in urinary obstruction it was always elevated from an inch to an inch and a half or two inches above the floor of the bladder. (2) He took the position that normally there was no third lobe, but that segmentation took place behind the prostatic fissure in consequence of a hyperplasic process, this process occurring in the direction of least resistance —into the cavity of the bladder. (3) Only a small

percentage of cases of hypertrophied prostate was responsible for urinary obstruction. (4) No matter how large the prostate became, it would retain its functionating capacity. It was not the organ which caused suffering to the patient. (5) By prostatectomy this functionating organ was mutilated or destroyed, and the bladder, which really caused the patient trouble, was left *in situ* without any operation having been performed on it. (6) In only a small percentage of cases could the prostate be enucleated. (7) It was unfortunate that the profession had reached the point of resorting to routine prostatectomy in all cases of urinary obstruction. (8) The commissure and capsule were obliterated in the fibromyomatous variety of prostate. In the adenomatous variety, if complete and permanent drainage was established, the prostate would shrink.

Dr. C. H. Mayo, Rochester, Minn., had operated by the median perineal method in over thirty cases after the manner of the Goodfellow procedure, and had been much pleased with the method and results.

Dr. W. P. Carr, Washington, D. C., had never seen but one prostate where there was any difficulty in peeling it out of its capsule. Cases of hypertrophied prostate should be operated upon earlier, before the bladder became infected. Prostatectomy in healthy men had a very small mortality; but in those who had infected bladders, who had Bright's disease, or atheromatous arteries, it was a serious operation.

Dr. Broom, in closing, deplored the tendency to do routine prostatectomy regardless of the actual pathological conditions of the parts.

Edematous Encephalitis.—Dr. W. P. Carr, Washington, D. C., called attention to a condition of the brain that he had encountered quite frequently when operating for cerebral epilepsy and for suspected cerebral abscess following mastoid disease due to grip. This condition he called edematous encephalitis. It was apparently so much benefited by opening the skull and draining the excessive serum from the brain, that it deserved careful consideration. He reported four cases. It was impossible to say in most cases whether the edematous encephalitis was caused by injury or by the poison of influenza, or whether it was a lesion of epilepsy. He had not been able to find any cases in the literature in which edema was noted as a marked feature. In cases of severe cerebral symptoms following influenza or blows upon the head, where the symptoms persisted or became worse after weeks of medical treatment, he thought that exploration was justifiable in the hope of finding edematous encephalitis or some other condition that would be benefited by operation. In operating for edematous encephalitis he recommended that a large osteoplastic flap be cut with the De Vilbiss craniotome over the site of any injury that might be suspected as a cause, or over some location indicated by the symptoms. If the symptoms furnished no local indication, and there was no local injury, then the flap had best be turned down in a convenient place, say the upper parietal region. The exposed membranes and brain substance should be examined carefully, and if they presented an edematous appearance, a grooved director should be introduced into the brain substance carefully in several places, and the serum drained off until the brain assumed a normal appearance. A small soft drainage tube should be inserted just through the dura into the arachnoid space and left in place as long as there was a copious discharge of serum. This tube might be brought out through one of the small trephine holes made for the introduction of the De Vilbiss instrument, and stitched to the skin after an osteoplastic flap had been replaced. If the head was carefully shaved and scrubbed, and all proper antiseptic precautions taken, this operation was almost free from danger; and if only a small percentage of the serious cases could be cured in this way, the operation would be justifiable. He had been encouraged by his limited experience to believe that surgeons might hope for recovery or great improvement from this operation in many otherwise hopeless cases of epilepsy and of progressive brain disease due to trauma and influenza.

A New Device and Method for Intestinal Anastomosis.—Dr. W. P. Carr said he had devised a method of intestinal or gastro-intestinal union by small silver clamps which he thought were more easily and quickly applied, and that had none of the objectionable features of the Murphy button. The clamps were exhibited. The method consisted in clamping the inverted edges of the gut from the inside, in the manner indicated by drawings which were passed around by the author. The clamps will hold well and make an air-tight closure. They were applicable to any sized intestine or wound. They left a large opening in the lumen of the bowel, and passed out as easily as watermelon seeds. The edge and corners of the clamps were smooth and rounded. They had small teeth to prevent slipping, made by simply indenting the metal; but these teeth were not long enough to pass through the entire thickness of the bowel. The clamp might be applied with any suitable flat broad forceps, but it was better to have a forceps with a slight ridge to keep the clamp from slipping. He had used these clamps in one case of resection of five inches of gangrenous ileum caused by strangulated hernia. The man recovered, and most of the clamps were recovered between the sixteenth and twenty-first days.

Dr. C. H. Mayo said he and his brother (Wm. J.) had operated on many cases of epilepsy and traumatic insanity, and he could corroborate what the essayist had said regarding edematous encephalitis. Treatment by drainage came the nearest to the solution of affording this class of cases relief.

Dr. I. S. Stone, Washington, D. C., mentioned a case, in referring to Dr. Carr's device, in which gastro-enterostomy was performed about a year ago, with the aid of the Murphy button, but the button had not yet been passed. In another case of diverticulum with obstruction the button was used, but the woman was still carrying it with some anxiety. Thus far, however, there were no symptoms of intestinal destruction from the retention of the button. He complimented Dr. Carr on the ingenuity and originality of his device, and said when an opportunity presented itself he would use it.

Dr. Guy L. Hunner, Baltimore, Md., objected to the use of all mechanical devices and favored suturing the intestine; although he thought the simple device exhibited by Dr. Carr would enable surgeons to do intestinal anastomosis rapidly.

Dr. J. Garland Sherrill, Louisville, Ky., advocated suturing the bowel in preference to the use of all mechanical devices. In his intestinal work he preferred silk.

The Surgical Physiology of the Lymphatic System.—Dr. C. H. Mayo, Rochester, Minn., said that a study of the lymphatic system readily explained many normal physiological as well as pathological processes. The subject was deservedly receiving more attention from surgeons who now generally recognized that aside from acting as the general absorbent system, it was constantly engaged in maintaining nutrition as well as defense against pathological processes. All tissues were provided with lymph vessels and glands in direct proportion to their exposure, activity and necessity for repair. The tissues of the body were constantly bathed in lymph, which fluid, similar to and derived from the

blood plasma, must all pass through the lymph vessels and glands. In the glands the lymph was exposed to the direct action of the leucocytes which were there found in great abundance. It was in the glands that infection was checked, and destroyed, or it might possibly overpower the gland and develop local growth. An enlarged gland was an evidence of a local struggle and defeat. The lymph system undoubtedly performed a great function in draining the ductless glands. Considering the lymph supply of certain organs, it was found that the brain was deficient in lymphatics in its structure, the arachnoid serving this purpose upon its surface. Hemorrhages into its structure became cysts from lack of absorption and infections in its substance caused but little temperature or general disturbance except from pressure. The liver and kidney showed the same condition in a less marked degree. The lungs, rich in lymphatics, gave constant temperature from infectious diseases. Chills usually signified the direct delivery of accumulations of infection into a vein. In certain diseases resulting from a loss of equilibrium between the production and absorption of fluids, one set of lymphatics was substituted for another by operation, as in glaucoma and hydrocephalus. When lymphatic conditions were considered in connection with surgical work, it was found that there was a real principle involved in drainage, whether it be internal or external.

Varieties of Drains and Drainage Adjuncts.—(1) Rest by splints, pressure, dressing or bed, to quiet the circulation; (2) by elevation to reduce arterial supply and favor venous and lymphatic return; (3) by massage to break up coagulated exudates and enable the lymph vessels to remove the exuded material; (4) moist dressings favor the escape of exudate from open wounds and also favor the lymphatic circulation in closed injuries; (5) adjuncts to drainage in the use of solutions having affinity for moisture acting by osmosis as glycerine or alcohol; (6) wound drainage could be accomplished by the open method with or without secondary suture; (7) by separate incision; (8) by wicks, capillary or tubular drains, or gauze packs, as mechanical aids.

Early Diagnosis of Cancer of the Uterus.—Dr. F. F. Simpson, Pittsburg, Pa., said the great body of the medical profession saw but a single case of cancer during the time they were treating hundreds of other afflictions, and naturally looked upon that malady as being relatively rare. As a malady, it was infrequent; but as a cause of death its frequency was appalling. Early in 1900 a note was addressed to the health departments of American cities with an aggregate population of ten million, requesting a tabulated statement of deaths from cancer and from all causes during each year of the preceding decade. Statistics showed that of every fourteen people who reached the age of thirty years, cancer would claim one as its victim. Bearing more directly upon the subject of cancer of the uterus, however, was the distressing fact that of every 28 women who passed the age of thirty years, one would be the victim of this disease. The paper was largely statistical, and the author closed by saying that the day was fast approaching when well-informed women of the cancer age would seek protection by regular quarterly examinations. Early diagnosis would then be the rule in cancer of the uterus as it was in appendicitis to-day.

Fracture—Dislocation of the Spine.—Dr. J. Shelton Horsley, Richmond, Va., reviewed the opinions of several authorities on the treatment of this lesion. He recommended that in treatment individual judgment should be used as in other surgical operations. He emphasized the similarity between injuries of the spinal cord and injuries of the brain so far as treatment was concerned, and called attention to the fact that without an operation or a post-mortem examination it was impossible to tell by symptoms alone when the cord was completely destroyed. He advocated the plan of McCosh, to operate in all cases of complete paralysis below the injury unless there was improvement within twenty-four hours after the injury. When the trauma was especially marked, he operated sooner. He pointed out that the danger of delay lay in degenerative changes in the spinal cord which set in soon after the injury. Early operation might arrest this degeneration. He reported six cases, in two of which the injury was received several years before he saw the patient. In one there was a forward dislocation of the axis and atlas from the third cervical vertebra. This was demonstrated by an X-ray picture. The patient had paralysis of the muscles of the arms, body and thighs. There were disturbances of sensation of various degrees over the body and limbs. He reported two other cases in which fatal results rapidly followed the injury. One was from a gunshot wound, and the other was the result of a fall on the shoulder in which there was a fracture-dislocation in the lower dorsal region. The last two cases he operated upon, in one there was an injury at the lower dorsal region where the whole of the dorsal spinal column was dislocated forward upon the lumbar spinal column. The spinous process of the last dorsal vertebra was fractured. The cord was caught between the last dorsal and the first lumbar as between the blades of a pair of scissors. It was not completely crushed as the dislocation was not extensive enough. It was impossible at the operation to reduce the dislocation, so the spinous processes and the laminæ of the last three dorsal vertebræ were removed. This relieved pressure on the cord. The patient died, however, from pneumonia a week later without any improvement in the spinal symptoms. A post-mortem examination showed the wound in an excellent condition, with the cord softer than at the time of operation, and solidification of the whole lower lobe of the right lung, and a part of the middle lobe. In the other case operation was undertaken about a month after fracture of the eleventh and twelfth dorsal vertebræ in a laborer, nineteen years of age. The cord was almost completely gone, there being a few fibers remaining from its anterior portion. The laminæ had been fractured and driven into the canal. One of the articular processes had also been driven into the canal. These were removed, and the wound closed, leaving a small catgut drain. There was no decided improvement in his condition for six weeks after the operation. At this time he urinated voluntarily; two weeks later there was noticeable improvement in both sensation and motion in the thighs. This improvement continued until the present, about three years after operation. His thighs were practically normal as to motion and sensation. Bladder and rectum acted naturally, and his general health was excellent. He could stand with support and walk by having a strong support on each side. His legs and feet were still paralyzed both as to motion and sensation. At present patient weighed nearly two hundred pounds, and was quite comfortable, except for occasional pains in his legs.

Neoplasms, Wherever Situated, Should, if Possible, Be Removed, Whatever Their Apparent Nature.—Dr. Maurice H. Richardson, Boston, Mass., considered chiefly neoplasms of the breast and of the female pelvis in his paper on this subject. The reasons which justified the adoption of the title rule in these regions would apply with certain exceptions to all parts of the body. These reasons, all of which were illustrated by

specific cases, in the author's own experience, were as follows: (1) The uncertainty of the diagnosis, even on the part of the most experienced and the most skilful, made palliative treatment hazardous, especially in the doubtful cases. Several instances were given in which the patient was not operated upon because the tumor was supposed to be benign when, in reality, it was malignant. The error cost the patient the favorable moment for operation. The impossibility of accurate diagnosis in even the most accessible regions of the body was emphasized. Breast tumors apparently benign had proved malignant. Breast tumors benign throughout their principal areas showed minute foci of malignancy. Breast tumors clearly benign had after many years developed a fatal malignancy. So in abdominal tumors, especially the pelvic tumors in women, the difficulties of diagnosis made the apparently benign cases especially dangerous. Many instances were given illustrating the difficulties of diagnosis and the necessity for exploration in even the most favorable cases of presumably benign growths. (2) The dangers of benign tumors becoming in time malignant was emphasized and illustrated by not a few cases in which after years of slow and harmless growth a tumor had suddenly developed evidence of malignancy. Tumors of the breast, of the gall-bladder, the stomach, the uterus, the ovary, and of other regions, had by an acquired malignancy convinced the speaker that the only safe rule of treatment was in all cases thorough extirpation of the tumor as early as possible. (3) The wisdom of exploration in certain apparently hopeless tumors was illustrated by cases in which a benign and easily remediable condition was found, and in which impending death was averted by a safe operation. In this class were infiltrating tumors of the abdominal wall supposed to be hopelessly malignant, but which proved to be tuberculosis of the muscle, aponeurosis; epigastric tumors, apparently cancerous, found to be pancreatic cysts, actinomycosis, chronic pancreatitis, and the like. Pelvic tumors supposed to be malignant and inoperable were proved to be old tubal inflammation, fibroids, ovarian cysts and the like. (4) The essential malignancy of certain areas in the malignancy-inviting nature of certain regions, especially the breast and the ovaries, was especially emphasized. In these regions the tendency of tumors to become malignant made the application of this rule practically imperative. Ovarian tumors, even when apparently benign, were shown to have especially dangerous tendencies to malignant degeneration. (5) In pelvic tumors especially, the benign often masked the malignant. Cases were reported to illustrate the obscuration of a uterine sarcoma by an overlying fibroid. In two recent cases cancer of the ovary was found concealed by an enormous fibroid, and in a third there was found an annular stricture of the sigmoid flexure. The rule of universal extirpation had numerous exceptions. It should not apply to superficial tumors, clearly benign, which could not be removed without great disfigurement; keloids that could not be removed without leaving a broad scar, unless they showed a tendency to ulceration and malignancy; all other benign tumors, which caused needless suffering, disability and disfigurement, whenever their removal was dangerous, or whenever the patient's general condition was unfavorable; and tumors of all kinds in which the dangers and sufferings of removal outweighed the dangers and sufferings of the tumors themselves.

Dr. Henry T. Byford, Chicago, said he belonged to the Chicago Academy of Medicine, whose motto was, "When you see a head, hit it." He thought this would fittingly apply to the removal of tumors as soon as they were seen. A year and a half ago he was called upon to diagnose a tumor in the pelvis about the size of the end of one's thumb, which was situated between the bladder and uterus. The attending physician said that this tumor did not amount to much, and argued against operation. The woman subsequently became pregnant, miscarried at the fifth month, the tumor at this time having attained the size of an egg. He thought it would continue to grow unless removed. No matter whether a tumor was going to become malignant or not, it was a foreign body and should be removed as soon as possible.

Dr. W. P. Nicolson, Atlanta, said early operation, when safe, was to be commended in every case. He related a case of sarcoma of the mesentery in which he had operated, with recovery of the patient. He also narrated a case in which a sarcoma sprang from back of the rectus muscle and infiltrated the whole pelvis. The tumor was removed, with recovery of the patient.

Dr. W. B. Coley, New York, stated that three years ago a patient came to him with a bad cancer of the breast. She had been under the observation of an eminent surgeon, who had been watching the tumor for a year at intervals, telling her not to have anything done until he thought she needed it. The tumor was finally pronounced cancer by this surgeon, but the patient consulted Dr. Coley with a view to having an operation performed. Careful examination disclosed all the characteristics of advanced cancer. An operation was done, but the disease returned within one year, from which the patient died. He thought these growths should be removed without waiting to determine whether they were malignant or not.

Dr. W. P. Carr said that one of the first tumors he had ever removed was a cancer of the breast in a girl of nineteen. He had no idea it was cancer at the time of its removal, but sections proved it to be such. This prompted him to examine all tumors, particularly those of the breast, and he was surprised to find that a great many of the tumors of the breast which he supposed to have been adenoma proved upon microscopical examination to be carcinoma. He thought if surgeons made it a routine practice to examine microscopically all the small benign tumors they removed, they would find many of them to be malignant.

Dr. J. M. Baldy, Philadelphia, said the more experience he had, and the older he became, the more he was convinced that the truly honest man would admit his inability to diagnose accurately many cases of tumors. He supported the essayist in saying that these neoplasms ought to be removed, no matter where they occurred. There were some tumors of the breast that were not malignant. He had removed a number of them, but he thought the vast majority were malignant. In the past year he had re-operated twice on cases of cancer that had been subjected to X-ray treatment, and in one he had operated a third time for the return of the disease after X-ray treatment, although the physician who had used the X-ray had said the patients were doing satisfactorily.

Dr. J. Shelton Horsley mentioned a case of cancer of the breast that was operated on. There was local recurrence, and the patient was treated by the X-ray. After two weeks' treatment with the X-ray the woman began to sink rapidly and soon died. Post-mortem examination disclosed extensive metastases in the brain, liver, kidneys, ovaries, heart, etc. The X-ray had no beneficial influence on this case.

Intestinal Cancer.—Dr. J. G. Sherrill, Louisville, Ky., in a paper on this subject stated that cancer of the intestine, while rare, was more frequent than physicians were led to believe; that sarcoma was much less frequent than carcinoma, and selected especially the small intestine, while carcinoma most often attacked the large bowel. The appendix was the seat of both carcinoma

and sarcoma, although occurring quite infrequently. The literature showed that men suffered from both forms oftener than women. Adeno-carcinoma was the type most frequently seen, while the round-celled sarcoma or the lympho-sarcoma occurred oftenest. The author reported two cases at length of cancer of the intestines. He said that the treatment was to be largely determined by the extent of the involvement. Resection of the intestine and extirpation of the growth offered the patient the only hope of a permanent cure, and this chance, though slight, should be given the patient whenever practicable, as early in the course of the disease as possible. Any of the classic methods might be employed.

Amputation of the Hip Joint for Sarcoma, with a Report of Seven Cases without Mortality.—In a paper on this subject, Dr. Wm. B. Coley, New York, said that the tumor originated in the bone or periosteum of femur in 5 cases, and in the soft parts in two. The age of the patients ranged between six and fifty-six years. In 6 cases Wyeth's pins were used, but in the seventh case the growth extended above Poupart's ligament; pins could not be used, and the external iliac artery was first tied. All of the patients made a good recovery from the operation; yet only one patient survived operation long enough to be called a cure. This was a sarcoma of the thigh in which the mixed toxins of erysipelas and *Bacillus prodigiosus* were used for two months before amputation. In one recent case the patient was still alive without recurrence; in all the other cases death occurred from local or general recurrence in from four months to two years after amputation. Of four other cases of sarcoma of the femur and thigh, treated by high amputation, just below the trochanter, two patients died at the end of four months; one died at the end of 2¼ years, and a third had recurrence in the gluteal region, which disappeared under the mixed toxin treatment, and the patient was alive at present without recurrence, six years afterward. The extraordinary malignancy of sarcoma of the femur was shown by the very small number of patients known to have survived for more than three years after amputation. Butlin was able to find but one case in 68 treated by high amputation or hip-joint amputation. Wyeth in 1901 collected 131 cases treated by hip-joint amputation with ten alive more than three years. Dr. Coley stated that he had personally known of but six cases. In one of these cases (Dr. Bull's) operated up sixteen years ago, a severe infection occurred in the wound, probably streptococcus, and the patient was well six years later. In another case (Dr. Gerster's) the disease was so extensive and so high up that amputation was considered impossible, and the patient was treated with the mixed toxins of erysipelas and *Bacillus prodigiosus* for several months. The tumor disappeared, and the patient was shown at the New York Surgical Society a year ago in perfect health, more than four years after treatment. The better results following amputation in the pre-antiseptic days the writer attributed to the infection that frequently occurred in the earlier period. This fact together with the results referred to, in which the erysipelas toxins were used, he believed sufficient reasons for advocating a systematic use of the toxins after primary amputation as a prophylactic against recurrence. He would not advise such treatment prior to amputation in sarcoma of the femur, on account of the great liability to early metastases, though in a case of sarcoma of the tibia he had been able to save the leg, and the patient was now well seven years afterward. The method of treatment advocated by Mikulicz, namely, resection of the femur, Coley did not think should be adopted as a substitute for amputation. While it was true a fairly useful limb might be obtained by resection, there were no cases treated by this method that had been observed for longer than a year, hence nothing could be said as to permanent cure. The X-ray, Coley believed, should never be used unless the patient absolutely refused amputation. One such case he had treated two years ago (round-celled sarcoma of femur); the tumor apparently entirely disappeared in the femur, but ten months later a large metastatic tumor appeared in the pectoral region, which was partially removed by operation. A little later another very large tumor appeared in the lumbar and iliac regions. Under long-continued treatment with the mixed toxins plus the X-ray, the tumors disappeared, and the patient was alive and well to-day, though by no means regarded as cured.

Diagnosis and Treatment of Gall-stones.—Dr. Mack Rogers, Birmingham, Ala., read a paper on this subject. After referring to the differential diagnosis, he spoke of the operation for the removal of stones from the gall-bladder, saying that where there were no adhesions it was a comparatively easy one, but when the stone was located in the common duct, or extensive adhesions existed, or both, the surgeon had a very difficult condition to deal with. In the hands of competent, experienced men he regarded this operation as one of the safest in the abdominal cavity. The mortality in all cases averaged only about three per cent.

Surgery of Urinary Tuberculosis in Women.—Dr. Guy L. Hunner, Baltimore, Md., reported 35 cases occurring in the service of Dr. Howard A. Kelly and his associates in Baltimore. These patients were all women with an average age at the onset of symptoms of twenty-eight years. The disease was unilateral in 31 of the cases, and it was probably primary in the kidney, as regards the urinary system, in 30 or more of the cases. Thirty-one cases had bladder symptoms at some time in the course of the disease, although only 18 cases had bladder lesions at the time of operation. Eleven of these 18 cases still had some bladder symptoms, and five were known to have bladder lesions, although 9 of the 11 had had systematic bladder treatment. Tuberculosis of the bladder did not heal with the ordinary methods of treatment, and if the disease persisted a year and did not occupy more than half of the bladder, it should be excised. Of 22 ureters examined microscopically, 17 showed tuberculosis, while 5 were chronically inflamed. If a tuberculous ureter remained either in part or *in toto*, the wound usually remained open at least two years, while the removal of the ureter with the kidney resulted in rapid closure of the wounds. Five cases died—three after six and eleven weeks, and two years, respectively, from involvement of the other kidney, and two, in fifteen and six days, because of the operation. Sixty-six per cent. of the patients were enjoying fairly good or excellent health.

Spurious Dysmenorrhea.—Dr. Henry T. Byford, Chicago, read a paper with this title in which he made a plea for a more rational treatment. After naming 25 varieties that were mentioned in the text-books, the author called attention to their disappearance therefrom. Many supposed cases were spurious in character. These had been perpetuated by the physician and cured by the quack. The absurdity of the nasal cure was emphasized and the cures referred to as spurious. Instances of menstruation in the male were quoted. The trend of the paper was to condemn writers for bringing the symptom into the foreground when it should be kept in the background, and for wasting their own time and that of their readers in ridiculous refinements and speculations.

Memorial Address on Dr. W. E. B. Davis.—Dr. Richard Douglas, Nashville, Tennessee, spoke eloquently and impressively of the work that had been accom-

plished by Dr. Davis, and pointed out in a masterly manner the distinguishing characteristics of the deceased.

Diagnosis and Treatment of Congenital Misplacement of the Hip in Infancy.—Dr. Albert H. Freiberg, Cincinnati, Ohio, had been able to ascertain that in several cases children with congenital misplacement of the hip had been late in walking. It was a common experience in mild grades of rachitis that children were late in walking. The usual age of sixteen months was passed by and the rachitic child not only failed to walk, but was usually also unwilling to stand. He had been able to ascertain in several cases and to observe in one that children with congenital luxation stood readily at the usual age for walking, and especially if allowed to support themselves by holding on to some object. It was only when independent effort at ambulation was urged that the child showed its timidity and refused to make the attempt as a normal child would. This period, of course, was gone through by every normal child, but in some cases its long continuance might be attributed to congenital luxation. The length of this period in luxation cases varied greatly, but in every case was finally determined by the child's learning to walk with more or less limping, at which time the diagnosis was usually made and was of no further interest in this connection. In some few instances mothers observed these things, and possibly also that the apparent breadth of pelvis and perineum was unusually great. It was, therefore, urged that in the presence of any of these signs which had been referred to, attention be paid to the possibility of congenital luxation, and that in the event of any doubt the X-ray be resorted to as a final means of precision. Experience had abundantly shown the feasibility of operative procedure after the age of one year, and that the results amply justified the great additional care which was necessary to prevent the dressings from becoming soiled in so young a patient.

The Progress of Ureteral Surgery.—Dr. J. Wesley Bovée, Washington, D. C., President of the Association, selected this title for his Presidential Address. After referring to the deaths of Drs. W. E. B. Davis, George J. Engelmann, and J. McFadden Gaston, he spoke on the surgery of the ureter, giving its history and present status. The treatment of ureteral calculi first claimed attention, since the diagnosis and treatment of this condition were very much studied at the present time. The employment of the X-ray was the simplest procedure known for purposes of diagnosis, and were it accessible at all times and completely reliable, no other method would be comparatively valuable. Unfortunately, such conditions as calculous anuria might render a patient in a secluded place so ill that this method of investigation was necessarily precluded. Moreover, calculi might be of sufficient size to block the ureter and give no shadow in the radiograph. For this reason especially, other plans of examination should be employed, although the necessity of constant manipulation of the ureter was a *sine qua non* to dexterity in treating other conditions of this structure. Palpation would ever have its important position. Exploration was an important method in such investigations. Tubular calculi might escape discovery by this plan. The wax tipped bougie, suggested and used by Kelly was especially sensitive, and no doubt if it touched a calculus it would receive a telltale impression. In the treatment of ureteral calculi the proper plan was extraperitoneal ureterolithotomy as infected urine was usually associated with this condition and easily produced peritonitis, if permitted to come in contact with the peritoneum. If pus was not present, the establishment of ureterocutaneous fistula would seldom be necessary, though careful drainage of the wound would be advisable. This rule applied to every part of the duct. He was firmly convinced the ureteral wound should be made longitudinally whenever possible, and sutured after lithotomy. If much necrosis of the ureter was manifest, as had often resulted from the impaction of a calculus, each case should be treated according to the judgment of the surgeon, and such modifications as resection or exsection, with uretero-ureteral anastomosis or ureterocystostomy might rarely be required. Frequently pyonephrosis accompanied calculous ureteritis. Incision and drainage, and probably nephrolithotomy would be needed in addition. The routes employed depended upon the location of the calculus, the bladder, vagina, or loin being selected. He could only endorse the rectal route, as employed by Ceci, when examination revealed a calculus ulcerating into the rectum or threatening to do so.

For ureteral fistula nothing need be done unless obstruction of the duct below the fistulous opening existed. In such a case the caliber of the canal must be restored. Usually the fistula would then close spontaneously, although so much cicatricial tissue might be deposited about the opening as to prevent closure. Suture or perhaps resection might be required in that case.

Dr. Bovée then referred to subcutaneous injury of the ureter, saying that no treatment was advisable unless evidence of extravasation of urine or of ureteral obstruction existed. For partial division of the ureter suturing should be applicable. Abnormal ureteral terminations of congenital origin might be corrected by ureterocystostomy, usually by the vaginal route. Fortunately in these cases the ureter was abnormally long, and therefore the difficulty was much less than was the same operation for other indications. The ureter might be removed in whole or in part tor tumors, tuberculosis, and malignant disease. In 1899 he was able to collect from literature about 24 cases of partial or complete ureterectomy. Now the number had increased to nearly one hundred. In complete ureterectomy or nephro-ureterectomy in women probably the loin and vaginal incisions constituted the best plan. In his last case he separated the lower two inches through a vaginal incision, and then separated and withdrew the kidney and ureter by the loin route. This he believed to be the best of all. For ureteritis the treatment had been largely of irrigation and topical applications. He had been disappointed in this work and had grave doubts of its being the best. Probably the violence done to the lower part of the ureter by this instrumentation counterbalanced the benefits. He had had a few cases of trigonitis that had come to him after ureteral irrigations were said to have been made. He had in consequence been led to speculate as to whether a non-alcoholic, non-nitrogenous diet with diuretics and rest in bed might not be superior treatment for simple ureteritis.

Pus Collections in the Pelvis.—Dr. C. N. Chavigny, New Orleans, La., discussed this subject, in which he reported three cases of mistaken diagnoses.

The Technic of the Vaginal Method.—Dr. J. Riddle Goffe, New York, said in his own hands the scope of the operation, namely, the conditions to which it was applicable, was steadily widening. It was no longer confined, on the one hand, to simple puncture and drainage, nor limited, on the other, to the radical operation of hysterectomy. All the intermediate procedures that were called for by the multifarious pathological conditions found in a woman's pelvis found their most direct route through the vagina. There were two vaginal incisions through which the pelvic cavity could be reached; one, posterior to the cervix into Douglas' pouch, and the other anterior to the cervix, separating the bladder from the uterus and opening up to view and touch the entire contents of the pelvis. The latter was the one which afforded the greater facilities for operative procedures.

and the one which he depended upon almost exclusively. The posterior incision was frequently used in connection with it, to afford additional opportunity for the purpose simply of securing drainage and in some cases for manipulation. The procedure was described. The simplest application of the vaginal method, and the one that probably commended itself most universally to the profession, was incision and drainage of pelvic abscesses. On general principles he believed all were ready to subscribe to the dictum that so far as the patient was concerned, any operation that could be as well done through the vagina as through the abdominal incision was better done along the vaginal route. The possibilities of this work would undoubtedly vary with individual experience, but the more experience he had, the broader became the field of application, until it seemed to him that any pathological condition that was confined to the true pelvis could be dealt with as satisfactorily, with as permanent results, and with far greater safety to the patient through the vaginal incision than through the abdominal incision. The author's cases had embraced every variety of disease from simple retroversion, with or without adhesions, to prolapsed and cystic ovary, unilateral and bilateral salpingitis, ectopic gestation, fibroid tumors of the uterus and dermoid cysts. The method lent itself to every form of conservative work upon the uterus and its appendages that had been suggested in the trend of recent modern gynecology. The successful application of it required patience, experience and skill, but when once the profession had been convinced of its superiority, he believed it would steadily and rapidly grow in favor and become the accepted method for the man who practised the specialty of gynecology.

Tuberculous Ostitis of the Knee.—Dr. A. R. Shands, Washington, D. C., said that the management of a case of white swelling could be embraced in the terms immobilization and protection in any and all stages of the disease. The indication was to preserve the function of the joint as far as possible, to arrest the progress of the disease, to prevent and correct deformities. Immobilization and protection with the best hygienic surroundings and the best tonic treatment appropriate to the individual case would best accomplish the indication just mentioned. If the diagnosis was made early and this line of treatment faithfully carried out, a large percentage of cases would yield very favorable results, many recovering with little or no disability. When it became necessary to incise and drain a joint, it should be done thoroughly and good drainage should be kept up just as long as there was any discharge. When the infection of the joint was due to an ostitis that was near the surface of the ends of the bone, often the diseased bone sloughed away and when it could be easily located and curetted, most excellent results were obtained. A case was cited in point. The operation of excision of the knee should never be done in children, except in extreme cases, and even then the author believed that amputation would be best, for an artificial leg is more useful than such a leg as a child would have after excision.

Bilateral Diffuse Virginal Hypertrophy of the Breasts.—Dr. George Ben Johnston, Richmond, Va., reported the case of a white girl, virgin, aged sixteen years, four feet ten inches tall, weighing 112 pounds, who had this disease. The breasts hung from the chest wall at about the fourth rib and reached to a point just above the symphysis pubis; the nipple was flattened and stretched. The substance was soft and of similar consistence to that of a well-nourished multipara's breast; the glandular masses scattered throughout were distinctly palpable. The breasts were almost symmetrical, with the exception of a lobular division at the base of the left breast of the same general structure as the main tumor. Two small scars near the right nipple indicated the site of former abscesses. The anteroposterior circumference of the left breast was 19¼ inches; the anteroposterior circumference of the right breast was 21¼ inches; the superior inferior circumference of the left breast was 32 inches; and of the right, 31 inches. Operation was performed under ether anesthesia, and occupied thirty-five minutes, the left breast being removed first, followed immediately by the right. The breast was held above the field of operation, and the amputation carried on as rapidly as the vessels could be caught by assistants. Healing was by primary intention, and the patient was up and about in six days.

Dr. George H. Noble, Atlanta, reported a case of excision of the psoas magnus muscle for sarcoma.

The Differential Diagnosis of Syphilis and Cancer of the Vulva—Dr. Barton Cooke Hirst, Philadelphia, read a paper on this subject. After referring briefly to the differential diagnosis of these two affections, the author reported the case of a woman, twenty-eight years of age, single, who had never been pregnant. She denied ever having led an immoral life, and the possibility of venereal infection. Ten years ago she was operated on in the Pennsylvania Hospital for hemorrhoids and fissure *in ano*. The wound of the operation did not heal properly. More than a year ago the patient noticed an ulcerated condition of the vulva, and a short time afterward incontinence of feces, followed soon by incontinence of urine. For two years past there had been amenorrhea. On a specular and digital examination, a fistula between the fossa navicularis and the rectum was discovered. The whole urethra was gone; there were three little tubercles at the neck of the bladder, these being all that was left of it. The vagina above the neck of the bladder was perfectly healthy. The cervix was normal, except that it was atrophic, as was the whole uterus. The case, at first sight, looked like an inoperable epithelioma of the vulva. It was pronounced to be so by one of the most experienced dermatologists in Philadelphia, to whom it was shown. But there was none of that extensive infiltration and elevation of the skin surface around the edges of the ulceration, such as was seen in an example of extensive epithelioma of the vulva, considerably advanced, but not yet inoperable. Moreover, numerous pieces of tissue from different places in the ulcerated area showed nothing characteristic of cancer. There was everywhere the most extensive round-cell infiltration and necrosis of tissue. The microscopic study, as well as the macroscopic appearance suggested syphilis in the ulcerated gummatous form as the most likely possibility, epithelioma being excluded. Accordingly the patient was put on specific treatment in spite of her negative history, and the entire absence anywhere in it upon her body of signs indicating an old syphilitic infection. The treatment was given up within a week, as the patient was severely ptyalized and could not endure large doses of potassium iodide. Lupus next suggested itself. On two separate occasions, under anesthesia, 12 or 15 pieces of diseased tissue were removed for microscopical examination. No tubercles or bacilli could be discovered anywhere. Inoculations in animals were negative. The urine contained no tubercle bacilli. The bladder itself was healthy. There was a response to the tuberculin test, but the woman had a patch of consolidation in the apex of one lung. Meanwhile the patient was given X-ray treatments every other day for eight to ten minutes. Within three weeks the external ulceration was healed. The local appearance at that time showed great improvement. Two weeks later the rectovaginal fistula spontaneously closed under the continuance of the X-ray applications. Nothing remained of the original disease, except the absence of the urethra

and an elephantiasic condition of the labium majora. The former had been corrected by urethroplasty. He had not yet joined the new urethra to the opening in the bladder, so that the establishment of continence of urine was still doubtful, but he was quite hopeful of making the patient eventually entirely comfortable.

Symposium on Appendicitis.—Dr. George R. Dean, Spartansburg, S. C., read a paper on appendicitis, saying there was not a surgeon who could tell in any given number of cases, in the beginning of the first attack, which ones would have severe attacks, and which light ones; which ones would die without operation, and which ones would recover permanently, which ones would recover to have repeated attacks, or which ones would recover cripples and never have another attack. The surgeon should be called in all cases of appendicitis. He considered it a surgical disease, outside of the pale of the physician, and when it was once discovered there was only one proposition to be made—namely, to urge operation at the earliest possible moment.

Appendicitis and Its Relation to Pelvic Inflammations.—Dr. J. M. Baldy, Philadelphia, was able to appreciate the reasons, although not agreeing with them, of the class of surgeons who removed the vermiform appendix as a routine practice as a prophylactic measure, but was unable to follow the reasoning of that class who adopted the practice of removal on the ground that the condition of adhesion implied appendicitis or future danger of this disease. Ninety-five per cent. of the mixed class were in origin cases of pelvic inflammatory disease, and the adhesion of the vermiform appendix was a mere coincidence due to inflammation of contiguous serous surfaces, as was so commonly the case of adhesion of intestines in pelvic inflammatory diseases. His experience had led him to differ with those gentlemen who held that appendicitis generated pelvic inflammatory disease, or that pelvic inflammatory disease caused appendicitis. The two diseases were rarely associated, and only then as a coincidence. He was firmly of the opinion that the one never causes the other. In all his experience he had not seen a single case in which, having found pus in a Fallopian tube, had he found pus in the involved vermiform appendix; nor had he found a perforating or gangrenous appendix in such a case. On the other hand, where he had found a perforated or gangrenous vermiform appendix, or one which contained pus, either in its cavity or enclosed in its walls, had he ever noticed pus in a Fallopian tube or ovary. Should he meet with such a condition it would appear to him that the two diseases existed as a coincidence independent of each other, as far as direct infection from one to the other was concerned.

Retroperitoneal Infection a Result of Appendicitis.—In a paper on this subject, Dr. I. S. Stone, Washington, D. C., said that it was our plain duty in certain septic cases to investigate the retroperitoneal space with the same care as the cavity of the peritoneum. First, one should consider every delayed case with anxiety, lest there should be retroperitoneal infection. Second, one should be careful to give a guarded prognosis in every case of appendicitis ushered in by or complicated by chills or any symptoms of sepsis. Third, if operating in such cases, one should consider retroperitoneal infection as already started, and act accordingly. The discovery and proper treatment of such infection was quite as important as the usual intraperitoneal technic. In view of the possibilities of retroperitoneal infection, the surgeon assumed great responsibility by advising non-intervention in appendicitis, and while one would often advise delay, when he believed the lesions were strictly intraperitoneal, yet it would appear to the writer that such a course was unsafe and should be condemned when there was reason to fear complications.

Short Incision in Appendicitis.—Dr. Robert T. Morris, New York, said the beginner in surgery was inclined to make incisions that were too short, rendering his work more difficult and very likely incomplete. With the establishment of confidence in his resources, the tendency was to make freer and bolder incisions. The surgeon could not do good work, particularly in abdominal surgery, if he began his work with incisions that were too short. He could not do the best work if he continued to make incisions that were too bold or too free. After one had acquired a certain amount of skill in technic, he could return to the shorter incisions, which would allow the patient to escape with the least possible attack of incision. Even a bear had been known to die from too much incision, and in dealing with patients the incision was of some consequence to them. With long incisions there was more shock; more adhesions, first, because the exposure of the peritoneum through a long incision excited greater inflammatory reaction, and this resulted in more peritoneal adhesions, which must be disposed of, or which might remain to make the patient lifelong trouble. Second, the longer the incision, the greater the danger of infection from the aerial bacteria. With long incisions the patient's general resistance was interfered with. He would make this statement, however, that the surgeon should make as long an incision as he felt was necessary, and by no means be guided by the idea that he was to conform to any length of incision, the idea being that if one could allow the patient to escape with a mild attack of incision, he should do so.

The Significance of and Management of Paralysis of the Bowel.—Dr. Geo. S. Brown, Birmingham, Ala., emphasized the views held by the surgeons of the past generation, that paralysis of the bowel in the presence of inflammation of the peritoneum was to be regarded, not as a pathological condition to be combated, but rather as nature's way of allowing the plastic exudate to form adhesions, the use of which was to confine the infection to as limited a field as possible. He held that it was not the paralysis, but the overdistention of the bowel, that should be fought. By following the plan of keeping the upper uninflamed portion of the bowel quiet, until the inflammation subsided, rather than attempting the difficult or impossible feat of reviving the inflamed and paralyzed portion by the use of purgatives, he believed he would cure many or the majority of the cases of diffuse peritonitis with which the surgeon had to deal. This rest treatment should be applied after the offending appendix or tube had been removed, and the infected site properly treated and drained. It seemed to him that if the Ochsner plan of treatment would tide over a patient with a gangrenous appendix, such a patient could have a much better chance if that appendix were removed, and to the Ochsner treatment were added the tight abdominal binder with water to relieve thirst and wash out the stomach, if there was vomiting, together with opium *ad libitum*, to relieve pain and keep down peristalsis. He believed that many patients died with all the symptoms of general peritonitis following operations for appendicitis where autopsies would show that the inflammation had been walled off, and that death was really due to the activity of the upper bowel, due to the presence of food or purgative, which, being unable to pass the lower paralyzed portion, set up a return wave of peristalsis, causing regurgitant vomiting and death from exhaustion and sepsis. He related two cases in point. Both patients had high fever, great distention and gulping fecal vomit, and the autopsies showed that neither had general peritonitis. One of these patients had been operated upon, the other had not, but both had been given large doses of purgatives. In a total experience of ninety cases of ap-

pendicitis he had had 66 pus cases, 24 of which had been treated by the plan of starvation, except as to water, prolonged irrigation of the stomach before leaving the table, a tight abdominal binder and opium. Eighteen of these patients had more or less diffuse peritonitis, and 12 of these were so severe that they had to be extensively disemboweled in order that adhesions could be broken up and septic material wiped away. Two of these only died. These might have recovered had they been tided over without operation, but as they were both *in extremis* at the time, probably the only thing saved would have been the reputation of the surgeon. Of five other deaths occurring in the ninety cases, two were due to subdiaphragmatic abscess rupturing into the lung, one to regurgitant vomiting, due to the presence of a large quantity of castor oil in the bowel, which was not washed out, and two early cases where abscesses that had already set up a diffuse peritonitis were merely incised.

Septic Thrombosis of the Femoral Vein Following Influenza.—Dr. D. F. Talley, Birmingham, Ala., reported a case of septic thrombosis due presumably to influenza from which the patient was recovering when the phlebitic trouble arose.

Five Recent Successful Laparotomies for Gunshot Wounds of Abdominal Viscera, Including One with Twenty-eight Perforations of Intestines and Mesentery.—Dr. Robert W. Johnson, Baltimore, Md., read a paper with this title, in which he reported five cases The first was one of gunshot wound of the stomach and liver; laparotomy, with recovery; second, a gunshot wound of the liver; laparotomy, recovery. Third, gunshot wound of the liver; laparotomy, recovery. Fourth, gunshot wound of intestine, laparotomy, recovery. The fifth case was one of gunshot wound of the intestines, in which there were 17 perforations of the gut, 11 of the mesentery. The patient was a colored boy, aged seventeen years. While watching an election row he was shot in the abdomen. When put on the table he presented the appearance of a strong, well-developed negro, composed in manner, but suffering from profound shock. There was no pulse at the wrist, and collapse seemed imminent. Salt solution was injected into the thighs and strychnine given hypodermically. A wound from a 32-caliber ball was found in the left side, just above Poupart's ligament, which, after washing, was found to go directly into the abdominal cavity. A median incision was made below the umbilicus and the belly found to be full of blood. Through this incision the gut was drawn out on to warm towels and seventeen perforations of the small intestine, and eleven of the mesentery, were successfully closed by silk Lembert sutures. Patient had no setback after the operation, and was discharged well three weeks after injury was received.

Cases of Intestinal Obstruction Treated by Resection.—Dr. W. H. Doughty, Jr., Augusta, Ga., reported three successful cases of resection of intestine for obstruction due to gangrenous umbilica hernia, volvulus, and intussusception, respectively. He presented these cases briefly as a contribution to the statistics of an operation, the mortality of which was very high. One of the cases was rather unique, so far as the author knew, in that the strangulated loop of intestine in the hernia was a part of a greater segment which had been strangulated by volvulus. It was likely that the descent of the herniated coil took place shortly after the occurrence of the volvulus, and its strangulation was occasioned by the congestion which followed the latter. The almost invariable fatality which attended the operation he attributed to the toxemia that was induced by gangrene of the intussusceptum. In one case, however, which he outlined, in spite of the unmistakably gangrenous patches upon the intussuscipiens and involving even the mesentery, the patient, though far from being in a satisfactory condition, stood the operation fairly well, rallied promptly from the depression which attended it, and recovered without interruption.

Free Growths in the Tunica Vaginalis.—Dr. Edward A. Balloch, Washington, D. C., reported the case of a colored boy, sixteen years of age, who came under his care in December, 1902. Family and personal history threw no light on the case. There was no history of injury. Present trouble began eight years before, as an enlargement in the upper part of the right of the scrotum, which continued to grow painlessly from that time onward. Examination showed a scrotum reaching nearly to the knees and measuring twenty-one inches in circumference at its largest point. Both testicles and both cords could be made out and felt normal as to size, shape and consistence. There was no fluid in the scrotum, but a peculiar gelatinous, flabby feeling of the scrotal tissue. Three separate tumors were felt in the right side of the scrotum. The growths were freely movable in relation to cord, testis, and scrotal tissues. The diagnosis of fibroid growths in the tunica vaginalis was based partly on the history of a slow, painless growth, and absence of ulceration and fistulæ, excluding cancer, syphilis, and tuberculosis, and partly on the physical characteristics of the growths, together with a keloid behind the right ear, which was interpreted as indicating a tendency to fibromatosis in the patient. Operation, Dec. 15, 1902, showed the tunica greatly enlarged and thickened, and converted into a gelatinous mass. The upper tumor ran into the inguinal canal and was attached there by a pedicle. The other two showed no distinct points of attachment. All the tumors were enucleated and the thickened tunic removed. The testicle was removed accidentally in dissecting out the tunica. The tumors weighed 38 ounces, and the tunica 20 ounces. The specimens were shown. The report of the pathologist showed that the growths were soft fibromata, with areas of fatty and myxomatous degenerations. The testicle also showed areas of beginning myxomatous degeneration. The pathology of the condition was considered briefly, the conclusion being reached that the growths had their origin in the subserous connective tissue. Examination of the literature showed but one case at all resembling the one reported, although there were several reports of minute fibrous growths on the tunic following hydrocele treated by the injection of iodine.

Dr. J. McFadden Gaston, Jr., Atlanta, Ga., dealt with the complications encountered in the surgical treatment of the testicle.

Extrauterine Pregnancy.—Dr. T. J. Crofford, Memphis, Tenn., reported a case and exhibited a specimen in which the gestation sac was so thoroughly developed and so strong, that it was enucleated without the loss of any blood. The sac was completely intact all around the fetus. The operation was performed before the class. The speaker supposed it to be a parovarian cyst. After the specimen was removed, it was thrown upon the floor. When the patient was put to bed, the sac was slit open and out came the fetus. When the abdomen was opened in this case, the head of the cecum was found in front and adherent to the anterior abdominal wall. It was found necessary to remove the appendix.

Colloid Carcinoma of the Rectum with Excision by the Combined Vaginal and Inguinal Routes.—Dr. J. Horace Whitacre, Cincinnati, Ohio, reported a case of colloid carcinoma of the rectum which presented unusual pathological and clinical features. After detailing a complete history of the case and describing the operation, the author stated that his chief reason for presenting the case was the unusual nature of the primary tu-

mor. He had never before seen a carcinomatous tumor of the bowel which had developed as a hard, uniform thickening of the entire circumference of the tube. The tumor involved the wall of the rectum to almost a uniform degree for six inches in its length, and the organ was transformed into a tube that might very well be compared to a flattened lead pipe with very thick walls. The tube was very rigid and non-collapsible when in a fresh state. The lumen of the tube was unfortunately firmly packed with gauze before it was placed in Kaiserling's preservative fluid, and had been thereby dilated to almost twice its actual size during life. A second point of interest was the strong naked eye resemblance to tuberculosis. The minute bodies which were scattered over the pelvic peritoneum could not be differentiated from miliary tubercules. Large caseous lymphnodes were found in the hollow of the sacrum. The great predominance of fibrous tissue, the uniform involvement of a long segment of the bowel, and the appearance of minute nodules resembling miliary tubercles in the primary tumor of the rectum all spoke for hyperplastic tuberculosis of the bowel. A third point worthy of mention was the exceedingly rapid development of the solidly carcinomatous ovarian tumors from half a dozen minute miliary metastases on the peritoneal surfaces of each. These tumors were friable and almost jellylike, as were all of the metastases, whereas the original tumor was as hard as cartilage.

Pneumatic Rubber Suit.—Dr. George W. Crile, Cleveland, Ohio, said that the pneumatic rubber suit was constructed of a double layer of specially made rubber, which, when inflated, exerted a uniform pressure upon the surface, constituting an artificial peripheral resistance. It was so constructed that one or more limbs or the abdomen might separately or in combination be subjected to pressure by inflation by means of a bicycle pump. The air valves were so adjusted that the rate of decompression might be completely controlled. The effect of the suit upon the blood pressure might be checked by means of a sphygmomanometer. The general blood pressure might be varied at will within a range of 25 to 75 mm. of mercury. The rise had been sustained as long as twelve hours. In operations upon the head and neck, which were likely to be attended by dangerous shock and collapse, the pneumatic suit was put on the patient prior to operation. By inflation and deflation the blood pressure might, within certain limits, in the heaviest operations, be maintained at a given level. In a laryngectomy with extensive resection of lymphatic-bearing tissue of the neck moderate shock developed. The blood pressure was raised by means of the rubber suit, which soon sprung a leak; a marked fall in the blood pressure following. During the experimental stage the influence of the pneumatic suit upon the blood pressure was strikingly demonstrated in a pulseless case in which the blood pressure was raised to 110 mm. Other cases were reported, showing the value of the pneumatic rubber suit in cases of shock and collapse.

Resuscitation of Animals Apparently Dead.—Dr. Crile also read a short paper on this subject, giving a summary of experimental data. When asphyxia caused failure of the heart and respiration, vigorous artificial respiration usually restored their function when administered within a few seconds. It was effective in an inverse ratio to the time that had elapsed; it was rarely effective after forty seconds. By the addition of saline infusion a larger proportion of animals could be resuscitated after the lapse of a little longer time. Rhythmic pressure upon the heart, either through the thorax by pressure upon the ribs over the heart or direct pressure within the thorax was also an aid. The effect of the traumatism to the heart by the direct method partially counterbalanced the benefit from this measure. Nitroglycerin, alcohol and digitalis were useless; rapidly alternating the posture, head up, then head down, was not effective. Suspending the animal head down and making rhythmic pressure upon the heart was an effective method. This method gave the brain the advantage of gravity; it provided a moderate artificial circulation, as well as respiration. It could be promptly applied. The addition of saline infusion increased the effectiveness of the method. Animals apparently dead for periods up to fifteen minutes were resuscitated by the combined effect of artificial respiration, rhythmic pressure upon the heart, and the infusion of adrenalin. When the blood pressure had risen to 30 or more mm. Hg, the heart began to beat and the blood pressure was rapidly restored. The return of respiration was signaled by a short, almost imperceptible movement of the diaphragm, the respiratory action becoming gradually stronger and more frequent. The conjunctival reflex returned early. Some of the experiments failed on account of too great elevation of the adrenalin bottle; some on account of an overdose of adrenalin; several were only partially successful, owing to the great dilution of the adrenalin. Adrenalin, when injected directly into the chamber or into the wall of the heart, caused fibrillar contractions, after which the heart could not be resuscitated. After final cessation of the heart, by employing manual compression of the heart and infusing adrenalin, the blood pressure could be raised even higher than the normal. Respiration in some instances was partially restored. Experiments in which saline infusion was substituted for adrenalin, and which were unsuccessful, were promptly successful on adding adrenalin. In a patient with crushed skull, and whose heart had ceased beating for nine minutes, resuscitation of the heart for thirty-one minutes by this method was made. During the operation for the elevation of the depressed bone, the patient moved his head.

Officers for the Ensuing Year.—The following officers were elected: President, Dr. Floyd W. McRae, Atlanta, Ga.; First Vice-President, Dr. Geo. S. Brown, Birmingham, Ala.; Second Vice-President, Dr. J. Shelton Horsley, Richmond, Va.; Treasurer, Dr. Chas. M. Rosser, Dallas, Tex.; Secretary, Dr. W. D. Haggard, Nashville, Tenn. Birmingham, Alabama, was selected as the place for holding the next annual meeting; time, Dec. 13, 14 and 15, 1904. Dr. John D. S. Davis, Birmingham, was selected as the Chairman of the Committee on Arrangements.

The Council made a report to the effect that the former action of the Association in appropriating $2,000 to a memorial in Birmingham, consisting of a ward bearing the name of the Association in the City Hospital of Birmingham, be rescinded, and that in lieu thereof $2,000 be appropriated to the erection of a monument to the memory of Dr. W. E. B. Davis in Birmingham. The report of the Council was adopted.

BOOK REVIEW.

Nurses' Guide to Surgical Bandaging and Dressings. By Wm. Johnson Smith, F.R.C.S. Principal Medical Officer, Seamen's Hospital, Greenwich. J. B. Lippincott Company, Philadelphia; the Scientific Press, Limited, London.

Although intended for nurses, this would make an excellent volume to put in the hands of the medical student, as his first introduction to the underlying principles of asepsis, the treatment of wounds, etc. It is interestingly written, like most English books, and profusely illustrated, especially in the section on bandaging, and we can heartily recommend it.

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ORIGINAL ARTICLES.

THE MORTALITY OF APPENDICITIS.*

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IT has been difficult for me to select a subject about which much has not been written by the members of this society. The only solution of the problem has been to bring before you a part of some great subject, and dwell briefly upon that particular point to the exclusion of the subject in general. In accordance with this idea, I have chosen for my paper this evening, the mortality of appendicitis, its cause and limitation. There is probably no surgical disease about which so much has been written as appendicitis. The subject is trite and threadbare in many respects. There is little to be learned in regard to the etiology, symptomatology, and diagnosis of the disease. The operative technic can be but little improved upon in its present state of perfection. The mortality under proper antiseptic and aseptic conditions is so low, that in the nature of the disease it will never in all probability, be brought much lower. The writer's apology in offering some remarks upon the mortality of the disease, is the hope that others will contribute to this part of the subject, since in this way only can the profession arrive at a conclusion as to the progress which modern surgery has made in this direction. It is only by a careful study of the mortality under given conditions, that any improvement can be made in the direction of diminishing in the future, what now seems to be the lowest mortality that can be obtained. The percentage in these days of aseptic surgery in this abdominal operation, is less than the percentage in the simple amputation of the finger in the pre-antiseptic days. It would seem that surgery had reached its climax in regard to mortality in operation for the relief of appendicitis, yet the time will never come when there will be no death rate. Complications are certain to arise that are beyond the control of the surgeon. Crural thrombosis, intestinal obstruction, acetonemia, embolism, shock of operation, intercurrent affections, all afford examples to show that some mortality must always exist. It is with a view of possibly further reducing the small mortality, that this contribution is made. If a fraction of a per cent. can be gained in the reduction of the mortality, it is an advance in the right direction. The experience of surgeons during the past few years has demonstrated new methods, has pointed out new ways, and has discovered new facts, all of which tend to reduce the mortality. It seems now the only thing that is left is to combine the various views of experienced surgeons into some uniform plan of treatment, in order to produce the best results. There appears to be a fair concensus of opinion as to the advisability of removing the appendix in those cases where the attacks have been multiple, or even solitary. There is also a uniformity of opinion in reference to an operation in diffuse peritonitis as the only measure to save life. There is likewise no difference of opinion as to the propriety of an operation in abscess cases in order to afford the patient the best chance for recovery. There is however, some variation of opinion among the best surgeons as to the necessity of immediate operation in cases of catarrhal appendicitis. Some surgeons advocate an operation in all cases at once, even within the first twelve hours, other surgeons whose experience is just as extensive, counsel delay if the attack is mild, with the expectation of removing the appendix in the interval, since this operation is safe in the hands of a well-trained surgeon. It is in this type of cases that surgeons are not in perfect accord. The question that forces itself upon us for a solution is: Can the mortality of the disease be reduced by immediate operation in all cases, or by delay in mild cases, and the removal of the appendix after the attack has subsided. It has been proved by the accumulated experience of surgeons that interval cases have practically no mortality. It has been shown also that operations during an attack, even though early, have been attended by some mortality. As to which of these two courses to pursue, in all cases it seems to the writer that the only safe plan is to decide each case upon its merits. There may be special reasons when an immediate operation in a given case is the better plan of procedure, and likewise there may be special reasons in another case why delay is the better course to pursue. Such factors as environment, the presence of a skilled surgeon, capable assistant and good nurse, proper sterilization, all enter into the question as to the wiser course to pursue in a given case. It is only by an exhaustive study of all facts in each case, that a plan can be adopted that will afford the patient the best chance for recovery which is tantamount to saying with the least possible mortality.

The mortality in appendicitis in all cases under medical treatment is about 16 per cent., with 30 per cent. of relapses, while in diffuse suppurative peritonitis it is almost uniformly fatal. The mortality in appendicitis in all cases under surgical treatment is about 4 per cent., and with no relapses, and in diffuse suppurative peritonitis the mortality in the published statistics is from 31

* Read before the Medical Society of the County of Kings, December 16, 1903.

per cent., the lowest, to 91 per cent., the highest, and in the writer's eleven consecutive cases of diffuse suppurative peritonitis the mortality was zero. It is stated by Fowler that "13 per cent. of all cases develop diffuse peritonitis; but in order to save 13 per cent., 100 successful laparotomies must be performed," and they must be performed under slightly unfavorable circumstances. We might go still further, and take most extreme views and operate on every child born into the world. This plan would annihilate the disease; but it would be performing an operation, the necessity for which might never arise in the large majority of the cases. The writer, after studying all available statistics of recent origin, and comparing them with his own, has come to the conclusion that any case after thirty-six hours that is not improving in every way, should be operated upon at once, since Fowler has demonstrated that operation in forty-eight hours in 127 cases 83 per cent. recovered. When the cases were left to the fourth day there was 60 per cent. recoveries, to the fifth and sixth day, 58 per cent., to the seventh to the eighth day 50 per cent., and to the ninth to tenth day 33 per cent. The value of the early operation depending upon the condition of the patient in forty-eight hours after the onset of the attack is thus obvious. The results would be still better if the operation was performed within thirty-six hours. Now let us suppose the simple case is not operated upon at the end of thirty-six hours; but is left to recover without operation. If this type of case is now operated upon, say a month after the attack, the recoveries, debarring an accident, ought to be 100 per cent. This line of practice seems to yield the best results and is extremely radical under certain conditions and quite conservative under other conditions. This plan of allowing the simple catarrhal cases which are doing well after thirty-six hours to recover without immediate operation, and relegating them subsequently to the group known as interval cases, and the prompt operation after thirty-six hours when the cases are not doing well, seems to hold out the best prospects of recovery. The pendulum has swung too far toward indiscriminate operation, but now the introduction of the interval operation has brought the pendulum back to swing within the proper limits. There are some cases where the surgeon ought not to wait even thirty-six hours, but operate at once; it may be within twelve hours after the onset of the disease. These cases are rare; but they occasionally occur, and in this type of the disease no time must be lost to save the patient, since early operation is the only salvation. If a rule is laid down which applies to the surgeon to operate in all cases immediately, this rule would be inapplicable in country practice to the family physician. Morris states that "a surgical death rate of 2 per cent. is illegitimate in cases operated upon in the first attack before infection has extended beyond the confines of the appendix." Such a statement is misleading because there is bound to be, and there always will be a death rate in certain varieties of bacteria, no matter how soon the operation is performed. Bull has collected statistics in which he gives a death rate of about 2 per cent., but those cases are all interval cases collected from various sources. It is in this class of cases the writer believes that there should be no mortality at all, debarring an accident. Oschner has recently contributed some statistics from his own operations during one year, which reflect great credit upon his excellent work. In the acute cases there was a mortality of 3 per cent., and in the chronic cases there was a mortality of 1 per cent. In the entire number of cases, both acute and chronic, there was a mortality following the operation of 2 per cent. Deaver has also recently contributed some statistics from his own operation extending over a period of one year, which likewise reflect great credit upon his surgical skill. In the cases of general and diffuse peritonitis there was a mortality of 31 per cent. In the cases in which there was abscess there was a mortality of 12 per cent. In the cases in which the disease was confined to the appendix, with stricture, ulceration, and necrosis of the mucous membrane there was a mortality of 0.8 per cent., and finally in all the cases operated upon, the total mortality was 5 per cent. Richardson's published statistics are practically the same and the result of these various operators give an idea of what surgery has accomplished. In a study of the last 119 cases of appendicitis occurring in the practice of the writer up to April 1, 1903, the mortality of the disease, irrespective of operation or of any special plan of treatment, was a little over 1½ per cent. In the cases treated without operation, in which the attack was a mild catarrhal one, and in which the patients were not operated upon during the attack, the mortality was zero. In this group of cases in which conservatism was employed for special reasons, the appendix was in many cases subsequently removed owing to repeated attacks, and the mortality was zero. In the group of cases in which the appendix was gangrenous and had ruptured into the peritoneal cavity with a general purulent peritonitis, of which there were 11 cases, the mortality was zero. In the cases in which there was an acute perforative appendicitis, and in which the appendix was gangrenous, and found in a circumscribed abscess cavity, the mortality was 7 per cent. If now in this group all the operative cases are collected, both acute and chronic, the death-rate was 2 per cent. If the two fatal cases in the entire list of 119 cases are eliminated, which were hopeless from the start, but which were operated upon because it was offering the only possible chance of life, forlorn as the prospect was, the mortality of the disease was zero. The mortality of the operation both for acute and chronic appendicitis was also zero. Such cases as the two that died will always occur, and will always prevent the absence of mortality in the disease. In other words, if the two fatal cases are eliminated on the ground that surgery is powerless to save where complications, such as empye-

ma and abscess of the lung, exist, the mortality in the medical and operative treatment of this disease in 117 consecutive cases was zero. The two deaths, which make the mortality of the operation in all cases about 2 per cent., which in itself is insignificant when the nature of the disease is considered, deserve special consideration.

The first death was due to alcoholism and empyema and exhaustion in a tramp who was found by the police in the hallway of a tenement house upon a very cold night. He was brought to St. Vincent's Hospital in an exceedingly grave condition. The second death was due to an abscess of the lung consecutive to a subphrenic abscess caused by a suppurative appendicitis. In a study of these two cases of appendicitis it is evident that the special conditions in each case indicate that they belong to a class that no surgeon can save. The first case was operated upon to offer the man his only hope, and yet the conditions were such that practically precluded any prospect of success. The second case was hopeless, since the disease involved simultaneously other and vital organs. These two cases were fatal from the start, or, at least, fatal at the time when seen by the surgeon, and involved a general infection too widespread to expect any result from operative interference. When it is considered that in this list there were eleven cases of perforation with pus free in the peritoneal cavity and general peritonitis, all of which recovered, it is evident that modern surgery has advanced to such a point that little, if any improvement can be made in the treatment of this heretofore fatal disease. In other words, modern surgery has almost completely gained the mastery over the disease, since a mortality of about 2 per cent. can hardly be expected to be improved upon in the future.

Before discussing the operative cases, the writer desires to express his views in a most emphatic way in regard to operative interference in the catarrhal cases. These views especially refer to patients seen by a surgeon whose only claim to the title is the fact that he is licensed to practice. He may have no competent assistants, and the environment bad in the extreme. A patient under such circumstances is far safer in catarrhal appendicitis, to be treated by lavage of the stomach, the ice coil, the abstinence from food, except by the rectum, a plan suggested by Ochsner, than to be operated upon by a novice, whose experience in abdominal surgery is confined to the knowledge obtained from a text-book. The mortality of the simple operation is appalling in the hands of an inexperienced surgeon. The writer has knowledge of one surgeon who operated upon 19 consecutive cases with 19 deaths. After the attack is over, the appendix can be removed as an interval operation with safety if performed by a well-trained surgeon. The writer once saw a surgeon operate in which he attempted to tie the appendix off about midway between the tip and the base. A kindly remonstrance or timely suggestion in this case saved the patient's life without any doubt. If the plan of treatment suggested by Ochsner is not followed by marked relief within twenty-four hours, operation should be immediately performed. There is no doubt that as a rule to which exception can occasionally be found, and the simple catarrhal cases appear to be one of the exceptions, these cases recover without serious disturbance, and the appendicular colic subsides, while the appendix does not become seriously altered in its anatomical or pathological aspect, and the parts practically resume their normal condition. This class of cases must not be confounded with another class in which inflammation is present, and in which the process is likely to go on to suppuration. The absence of any improvement in thirty-six hours, and the exacerbation of all symptoms would relegate the simple catarrhal cases to a category requiring immediate operation. In the catarrhal cases the surgeon must not be induced to operate by a leucocytosis obtained by one single blood count. In one case of simple catarrhal appendicitis which the writer saw in a neighboring city, the blood count was 19,500, and every step was taken to operate as soon as preparations could be made. The patient was seen at midnight in a boarding school for young ladies, and the operation was to take place the next morning. A blood count was again taken, and instead of 19,500, the count was 9,000. All symptoms disappeared quickly, and the young girl was brought to New York, and after a few weeks the writer removed the appendix in the interval. The organ was slightly thickened and the lumen narrowed, but there was no evidence of there having been any pus or perforation at the time of the attack, when the blood count was so high. The blood count to be of any value must show a marked leucocytosis which constantly rises and continues high, since even in simple catarrhal appendicitis, a leucocytosis may be found which, however, is only temporary; but nevertheless misleading if a decision to operate is based upon the results of one single examination. Only recently the writer saw a patient with catarrhal appendicitis with a blood count of 16,000, the patient showed marked signs of improvement, and after recovery the appendix was removed as an interval case. The appendix was adherent to the intestine and omentum; but there was no evidence of any abscess. The single blood count in this case, as in the one just mentioned, was misleading as to the presence of suppuration. There is an inflammatory leucocytosis which must not be confounded with suppurative leucocytosis. The character of the leucocytes may throw some light upon the subject. There are two varieties of leucocytosis: one termed an absolute leucocytosis in which there is an increase in the total number of leucocytes, and a relative leucocytosis in which there is an excess of the normal percentage of the polymorphonuclear cells. Since the percentage of polymorphonuclear cells in the normal condition is about 70 to 75 per cent., an increase of 85 to 100 per cent. indicates some grave condition in which pus is present. The diminution in the absolute

leucocytosis is always a favorable sign, provided, however, there is no relative leucocytosis present. This fact must be always investigated in order to attach any value to the falling absolute leucocytosis. In other words, a falling absolute leucocytosis may portend good or evil, depending upon the percentage of the polymorphonuclear cells. It must be remembered also, that it is not always, though usually it is the case, that there should be an increase in the number of the leucocytes in order to have a leucocytosis even in inflammatory conditions. This clinical fact must be kept in mind since there may be no appreciable rise in the count, and yet the condition known as leucocytosis be present. It is the relative high percentage of the polymorphonuclear cells which establishes the presence of a relative leucocytosis just as the increase of the leucocytes gives rise to an absolute leucocytosis. In other words, it is not the increase in the number of white cells only that indicates a leucocytosis, since the proportion may be normal, or even sub-normal, and yet a leucocytosis be present, as is shown by the presence of the polymorphonuclear cells. This latter condition is often seen when the pus is walled off in a small circumscribed cavity. The presence of iodophilia is very strong evidence of the existence of pus. Leucocytosis may be absent in a mild catarrhal attack, also in small walled off cavity of pus and in the virulent form of infection, when the patient is too feeble to respond to the action of the toxemia. For the purpose of study these cases will be divided into three groups. In this way the mortality in each variety can be estimated. *First.* The appendectomies performed in the interval. *Second.* The acute perforative and gangrenous appendicitis with abscess. *Third.* The acute perforative appendicitis without a limiting abscess but with pus free in the peritoneal cavity, and with general peritonitis. (1) The appendectomies performed as interval cases all recovered without any complications. These cases can be set aside with the mild simple catarrhal cases without further discussion. (2) The cases of acute gangrenous appendicitis with perforation and abscess deserve special consideration. In this class there were 28 cases, and the mortality occurred in this variety and, strange to say in the 11 cases with perforation and pus free in the peritoneal cavity, no death occurred. It is difficult to understand why the mortality was present in these cases and absent in the cases of general peritonitis. The virulence of the infection offers the only explanation, and in this class of cases surgery has been and probably always will be powerless to avert the fatal issue. (3) The acute perforative appendicitis without a limiting abscess, but with pus free in the peritoneal cavity, and with general peritonitis.

The 11 cases of perforative and gangrenous appendicitis with general peritonitis form a unique group by themselves. Every one recovered, and no case has been omitted that occurred within the limit of time designated. It is in this class of cases that the real triumph for modern surgery is demonstrated. It is expected in these days that all chronic cases will recover after interval operations. It is also expected that nearly all cases of perforative and gangrenous appendicitis with limiting abscess will recover. It is not expected that cases of general peritonitis will recover. These are the cases that are so fatal, and that contribute to the mortality of the operation. These 11 cases in the general list deserve special consideration, because they teach that modern surgery can still offer a chance of life in cases, where, until recently, death was an inevitable result. A brief report of the 11 cases will reveal the conditions present in each individual, the operative measures instituted for relief in each patient, and the final result in each case, not as regards life, since they all recovered, but as regards the after treatment, as it pertains to the repair of the wound, the absence of hernial protrusion, the disappearance of sepsis, the restoration of the function of the alimentary canal, and the improvement in the general health following so grave an operation performed for the relief of a condition which, until recently, was uniformly fatal. The writer will append an abstract of the 11 cases in which general peritonitis was present in order that an idea may be obtained as to the serious character of the cases in this group.

Case I.—Gangrene and perforation of the appendix with general peritonitis. Operation. Recovery. J. M., æt. eleven years, was admitted to St. Vincent's Hospital suffering from acute appendicitis. Five days before admission patient was taken ill with violent cramps in the abdomen, and frequent attacks of vomiting. The bowels were constipated, but the day previous to his entrance into the hospital had moved once after a cathartic administered by the family physician. Upon admission patient was very anemic and poorly nourished. His face was pinched, haggard and careworn; the eyes were sunken and hollow; the body extremely emaciated; the tongue badly coated; the pulse was 100 and feeble; the temperature was 102° F., and the respirations were 26. The abdomen was very tympanitic and exquisitely tender to the slightest touch; the pain was very severe and diffuse, extending all over the abdominal cavity. No tumor was palpable, either externally or by rectal examination. The vomiting was persistent and at one time as much as six ounces of dark brown fluid was ejected. Upon examination of the patient the same evening of his admittance the writer decided to open the abdomen as the general tenderness and tympanites and distention were so severe that it was evident delay would not be advisable. The vomiting too, pointed to some grave lesion of the appendix, and his general condition made it necessary to interfere without delay.

Every preparation for an antiseptic operation was made, and after the administration of a small quantity of ether, laparotomy was performed. The usual incision was made and the peritoneal cavity opened. A very fetid, purulent, brown fluid flowed out in abundance from the general peritoneal cavity. The appendix was black, gangrenous

and perforated, and lying upon the anterior surface of the cecum, which was also black and gangrenous. Pus flowed freely out of the opening in the peritoneum, beneath which the coils of the intestine could be seen covered with a purulent exudation. The wound was now enlarged and some of the coils of intestine toward the median line were found to be adherent to each other. In other words, there was no abscess cavity, no limiting membrane shutting off the pus, which was free in the general peritoneal cavity.

The question as to the immediate treatment of the gangrenous parts was not considered. Obviously the cecum was destroyed, and any resection with approximation, under the existing local and general conditions, was impracticable. Conservative treatment of the wound offered to the little patient the safest course, and, accordingly, the parts were left as undisturbed as possible, in the hope that nature would come to the rescue.

The appendix was ligated and removed, and the wound left open for drainage and disinfection. The wound was still further enlarged in order to permit of irrigation. Hot bichloride of mercury of the strength of 1-2,000 was first used, and after the visible pus was washed out, a solution of peroxide of hydrogen was slowly and gently injected into the cavity, and this irrigation was quickly followed by a free ablution of the peritoneal cavity by hot saline solution. The wound having been thoroughly disinfected and drained, an antiseptic dressing was applied.

At the end of the third day a complete cast of the cecum came away, together with gas and feces. The slough was subjected to microscopic examination, and it was reported to be only the peritoneal coat of the cecum, and that the slough had invaded only the outer wall of the intestine except at one point, where the rupture occurred. On the seventh day another large slough was discharged, and then the wound began to show signs of repair, as the granulations were beginning to appear healthy. On the fourteenth day still another slough came away while gas and feces continued to be discharged. Upon the outer surface of the cecum bright red sensitive granulations sprang up and gradually filled up the space, covered in the cavity and closed the fistula.

Remarks.—In this case, as the result shows, nature will do miraculous things, if only the surgeon does not interfere. Any unnecessary handling of the parts beyond that which is absolutely necessary to permit the free disinfection and drainage, the breaking up of distant adhesions, the handling of the infected portions of the intestines, the breaking down of nature's barriers, the interference to bring about an anastomosis when the parts are gangrenous and ruptured, all tend to jeopardize the patient's life; whereas disinfection, drainage, a medium of interference sufficient to meet the requirements offer to the patient the best chance of life. The complete repair of the wound, the entire closure of the fistula, the reestablishment of the continuity of the bowel, all were brought about by simply aiding nature in her reparative work; without doubt any other course would have caused the death of the patient.

Case II.—Perforative appendicitis with general peritonitis. Operation. Recovery. B. C., æt. twenty-three years, was admitted to St. Vincent's Hospital suffering from a severe attack of appendicitis. Four days previous to admission to hospital patient was taken ill with violent pains in the abdomen accompanied by nausea. Upon admission to the hospital, at 7:30 P.M., her temperature was 102.4° F., pulse 100, and respirations 28. Her tongue was coated, great thirst was present, and the kidneys secreting but little urine. Upon examination, the abdomen was very tender and distended, especially in the right iliac region. An ice coil was applied; strychnine and nitroglycerin were administered at intervals during the night; the bowels moved as a result of an enema and the patient vomited only once, although nauseated. The writer saw the patient upon the following morning and found the temperature 99° F. The pulse 100 and respirations 22. The abdomen was more tender and the tympanitis increased. Owing to the rigidity of the abdomen, the general tenderness, the presence of nausea and vomiting the writer decided to operate. Upon reaching the peritoneum very fetid pus gushed out from the opening and the intestines were extremely congested and were covered with pus, lymph and a fibrinous exudation. There was no abscess cavity, no limiting membrane, no special adhesions shutting off any circumscribed area. Pus was free in the cavity and surrounded and covered the intestine. The appendix was not found in this case. This part of the peritoneal cavity was now walled off by gauze and an attempt was made to thoroughly irrigate the infected area with hot bichloride solution, peroxide of hydrogen and finally with sterilized water. When this part of the cavity was thoroughly cleansed the mops were removed and the adjacent intestines were washed with the same solutions, and the general cavity washed out with a hot saline solution. The wound was now drained, and the patient made a slow, but otherwise satisfactory, recovery.

Remarks.—This case shows very clearly that the condition of the pulse and temperature fails to offer a reliable guide as to the exact condition of the patient. A temperature of 99° F., is not expected in a gangrenous appendix with pus free in the cavity. Yet in this case the temperature failed to reveal the real pathological condition. The case is interesting too, in the fact that notwithstanding the presence of a large opening into the peritoneal cavity for several weeks, the abdominal wound closed.

Case III.—Acute perforative appendicitis, with general septic peritonitis. Operation. Recovery. M. McG., æt. eleven years, was admitted to St. Vincent's Hospital suffering from acute appendicitis. Three days previous to her admission patient was taken ill with severe abdominal pains, nausea and vomiting. At the onset of the attack the pain was general over the abdomen, but later became

localized in the right iliac region. Upon examination, immediately after admission to the hospital the abdomen was found very distended, tympanitic and rigid, and also very sensitive to the touch. The temperature was 103.8° F., pulse 120, respirations 30. Having taken every antiseptic precaution and having placed the patient under the influence of ether, the abdomen was opened. Fetid pus flowed out of the opening into the peritoneal cavity and the intestines were congested, and covered with a fibrinous exudation and pus. There was no abscess cavity, no walling off of the infected area by adhesions, in fact, there was nothing that prevented the free access of pus into the general peritoneal cavity. The most infected area was now walled off with pads of sterile gauze and this infected area thoroughly irrigated with hot bichloride, then peroxide of hydrogen, and, finally, by hot saline solution in large quantities. The mops were removed and the same process repeated in the general cavity, and the wound was then left open for the purpose of drainage. Patient made an uneventful recovery, and suffered only as one would recovering from so serious a disease. The wound granulated and was entirely closed in, and the resulting cicatrix was firm, leaving no weakness in the abdominal wall.

Remarks.—In this case, as in the preceding one, the opening of the abdomen, the free irrigation of the localized area at first, and then the general irrigation, the provision for drainage offered the best chance for recovery. The appendices in these two cases could not be found as they had evidently sloughed and were in the débris forming the purulent collection. Only a limited search for the appendix was made in this case, since it is the meddlesome interference that causes death in these cases.

Case IV.—Acute perforative appendicitis with general septic peritonitis. Operation. Recovery. J. B., æt. twenty-six years, was admitted to St. Vincent's Hospital suffering from acute appendicitis. The day previous to his admission he was taken suddenly ill with abdominal cramps, which he states were general. He vomited once only before coming to the hospital. He stated also that he had suffered from two previous attacks of like nature, one occurred a month before his present attack, and the other about two weeks before. Upon his admission to the hospital his temperature was 99.8° F., his pulse 72 and of good character, and his respirations 18. His tongue was coated, his urine was diminished in quantity, his bowels were constipated and great thirst was present. Upon examination the abdomen was slightly tympanitic and tender to the touch, and his right rectus muscle slightly rigid. The absence of vomiting and severe pain, the presence of practically normal temperature and pulse, and his general satisfactory condition, taking into consideration the very mild character of his two previous attacks, seemed to justify noninterference, at least for the present. As the writer had made arrangements to be out of the city the following day to remove an appendix, he left instructions with the house surgeon to have Dr. Bissell, the assistant surgeon, see the case for him, and in the event of any change, to operate at once. During the following thirty-six hours a marked change occurred. The patient began to vomit, his temperature rose to 102.6° F., his pulse, however, rose only to 84 and his respirations 26. The tympanitis was increased and great tenderness was present over the abdomen. The patient became very restless and there was evidence of very serious disturbance about the appendix. Notwithstanding the decline of two degrees of temperature the pulse increased to 106, and the general condition called for interference. Dr. Bissell operated at once, and to him is due the credit for the recovery of this patient in my service. The abdomen was opened under every antiseptic precaution and the fetid pus flowed freely from the opening in the peritoneum. The appendix could not be found, and the cecum was black and covered with fibrinous exudation. Pus was free in the cavity and no adhesions had taken place to wall off the infected area from the general peritoneal cavity. The peritoneum was inflamed, and pus surrounded the coils of intestine. The immediate infected area was subject to irrigation in the manner already described, and then the patient was rolled upon his right side, and free irrigation was employed in the general peritoneal cavity, and the wound drained. Upon the second day following the operation the appendix came away while irrigating the wound, and the patient made an uneventful recovery. The wound healed and no fistula or hernia resulted from the operation.

Remarks.—The bacteriological examination showed that *Streptococcus* was the germ of infection in this case and not the *Bacillus coli communis.* From a clinical point of view this has much of interest attached to it. It illustrates the necessity of immediate and early operation in those cases where there have been repeated attacks. This seems to be true even in the face of practically a normal temperature, normal pulse respirations, and absence of vomiting. To be sure certain primary cases rapidly change for the better after the third day, but in the cases where the attacks are multiple, the operation is more likely to be successful if performed at once, than if left until conditions are more serious. This case also shows how unreliable are pulse and temperature as indicating the severity and danger of the disease.

Case V.—Acute perforative appendicitis with gangrene and rupture of the appendix. General peritonitis. Operation. Recovery. I. M., æt. ten years, while in perfect health was suddenly attacked with violent pains in the abdomen accompanied by vomiting, and serious constitutional disturbances. Upon the third day of his illness, the writer was asked to see the patient by Dr. Dalrymple, of New Rochelle. Upon examination, he found the patient suffering from serious constitutional disturbances. The pulse was 120, and the temperature nearly 104° F. The abdomen was greatly distended, rigid and tym-

panitic. The boy was in great pain and the writer advised an immediate operation, to which the mother consented. The peritoneal cavity was opened and a large quantity of fetid pus flowed out through the opening. The intestine was covered with pus and lymph, and the peritoneum intensely inflamed. There were no firm adhesions of the intestines to one another, and no circumscribed abscess wall. Pus was free in the iliac region, and the appendix was found gangrenous, with a perforation. The appendix was now ligated in the usual manner. The iliac cavity was walled off with pads of gauze, and the pus and inflammatory exudates washed out with a solution of bichloride of mercury, and then with peroxide of hydrogen and hot saline solution. After the part of the peritoneal cavity in which the appendix was situated was thoroughly disinfected, the general cavity was irrigated by using the same disinfectants, with the boy turned upon his right side. The wound was now drained and partially closed.

Remarks.—This case, with the preceding four, illustrates the value of an operation with gangrenous appendix and rupture, and suppurative peritonitis. Emphasis is placed upon the treatment of local disinfection of the iliac region and then the general disinfection of the peritoneal cavity. With the exception of great difficulty in getting the bowels to move after the operation, he made an uneventful convalescence. The cicatrix is firm, and there is no weakness in the abdominal wall at this point in consequence of leaving the wound open for drainage. This makes the fifth consecutive case of perforative appendix with suppurative peritonitis occurring within a few weeks, and offers encouragement to operate in those cases where the conditions are such as to lead one to expect a quick and fatal termination.

Case VI.—Acute perforative and gangrenous appendicitis with general peritonitis. Enterolith found in peritoneal cavity. Operation. Recovery. J. T., æt. fourteen years, was admitted to St. Vincent's Hospital suffering from acute appendicitis. The patient was treated outside for several days, and was brought to the hospital *in extremis*. The temperature was elevated, the pulse was accelerated and the respirations were rapid. As the condition was serious, an immediate operation was deemed necessary. The abdomen was opened, and a peritonitis was found, and the appendix was perforated by a fecal calculus about the size of a pea. The concretion was found in the search for the appendix, and was lying free in the cavity of the peritoneum, which was the seat of an acute peritonitis. The appendix was removed, the peritoneal cavity was irrigated after first disinfecting locally the region of the ileocecal valve, and then the general cavity drained and the wound partially closed. The patient made an uneventful recovery.

Case VII.—Acute perforative and gangrenous appendicitis. Pus in peritoneal cavity. General peritonitis. Operation. Recovery. J. B., æt. twelve years, was admitted to St. Vincent's Hospital suffering from severe abdominal pain. The boy was at school the day preceding his admission to the hospital, and twenty-four hours previous to his admission to the hospital he was apparently well. The attack began with violent pain, vomiting and rise of temperature. He attended school the morning previous to his entrance to the children's ward. The attack was thus very sudden in its onset, very severe in its character, and denoted a most virulent and rapid infection, calling for an immediate operation. Upon examination his pulse was found to be 140 to 150, respirations 40 per minute, and his temperature 104° F. He had been vomiting for the past twelve hours, suffered great pain over the appendix, had a rigid abdominal wall, and severe colicky pains in the right iliac region, with great tenderness over the appendix. A blood count was made, and there was a leucocytosis of 20,000. An operation was performed at once, and the appendix was found perforated and gangrenous, and pus was free in the peritoneal cavity. The peritoneal cavity was drained, and the patient made an entirely satisfactory recovery.

Case VIII.—Gangrene and perforation of the appendix with general peritonitis. Operation. Recovery. W. H. was admitted to St. Vincent's Hospital with a temperature of 103° F., pulse 128, and respirations 38. The patient complained of great pain in his right iliac region, which had come on suddenly with an attack of vomiting. Pain was very severe over the region of the appendix. In view of the alarming symptoms, the patient was placed at once under the influence of an anesthetic, and an operation was performed on the same day of his admittance to the Hospital. The appendix was found gangrenous and perforated, without any abscess cavity. Pus was found in the right iliac region, as well as in the peritoneal cavity. The appendix was ligated, and the stump touched with a strong solution of carbolic acid. The right iliac region as well as the peritoneal cavity were washed out with a solution of bichloride of mercury of 1 to 4,000, after that with a hot saline solution. A rubber drainage tube wrapped with sterile gauze, over which rubber protective was wrapped, was introduced into the right iliac fossa, down to the stump of the appendix. An incision was made upon the back where the cavity was drained in the same manner. Drains were also introduced near the median line in the general peritoneal cavity. The patient's temperature fell in forty-eight hours to 98.5° F., and ranged between that and 101° F. for several days. The temperature then rose again, and the abdomen was opened upon the left side, and a new pocket of pus was discovered. This was drained in the same manner as already described, and after several weeks all the openings were closed, and the patient made an uninterrupted recovery. The blood count in this case showed only 7,000 white blood cells at the time of the operation. The pa-

tient for many days was stimulated with whisky, sulphate of strychnia and nitroglycerin.

Case IX.—Perforative appendicitis with general peritonitis. Operation. Recovery. M. G., æt. eleven years, was admitted to St. Vincent's Hospital suffering from an attack of severe pain in the right side accompanied by nausea and vomiting. Upon examination there was found a rigid and distended abdomen, high temperature and rapid pulse with considerable shock. The blood count showed a leucocytosis of 17,000. The abdomen was opened and pus was found with a gangrenous appendix. The abscess was not walled off in every direction, and pus had escaped previous to the operation into the general peritoneal cavity. The abscess cavity was mopped out and made as sterile as possible and the general abdominal cavity thoroughly washed out with peroxide of hydrogen, then bichloride of mercury, and, finally, with hot saline solution. The appendix itself was found which was tied off and a tube wrapped round with sterile gauze and covered by rubber tissue was inserted down in the pelvis to the stump. Free drainage was also provided for the general peritoneal cavity by means of sterile gauze wrapped in rubber tissue to prevent adhesions of the intestine. The patient recovered with a small sinus leading down toward the stump; but after a few weeks from the time of the operation, the sinus closed and the boy was discharged cured. In this case there occurred a clinical fact worthy of mention. The blood count to which mention has already been made showed the day following the operation a rise to 40,000, which gradually fell to normal. It was a strange coincidence that with a blood count of 17,000 upon the day of the operation the leucocytosis should jump up the day following the operation to 40,000. This is in marked contrast to the case of general peritonitis from rupture of the appendix in which the blood count was only 7,000 with pus free in the general peritoneal cavity.

The tenth and eleventh cases of acute perforative gangrenous appendicitis with general peritonitis present nothing unusual in their histories. Suffice to say that these cases were operated upon in the same manner as has already been described and drained in the same way, and both recovered without hernia. This makes 11 consecutive cases of acute perforative and gangrenous appendicitis with general peritonitis with recovery; there is certainly nothing more to be learned in the management of these hitherto almost uniformly fatal cases. Surgery has accomplished by slow advances, and by repeated elimination, a method of cure for these cases, and can point with pride to its success in saving lives that formerly were lost by indecision to operate, and faulty technic.

The question of the reduction of the mortality in appendicitis confronts the family physician as well as the practical surgeon. On the family physician the writer would impress the clinical fact that appendicitis is essentially a surgical affection, and is governed by all the laws that pertain to acute infective inflammations in other parts of the body. If the case is not pursuing a favorable course after thirty-six hours of recognized medical treatment, it should be relegated to the domain of surgery. If the case is doing well within the limit of time mentioned, delay is possible as far as immediate operative interference is concerned; but still the case should be referred to a surgeon with a view to an interval operation. It would be a sad calamity for a patient to succumb to a fatal recurrent attack for want of having had an opportunity offered him to prevent his or her death. If the opportunity has been offered and the patient declined the operation, the responsibility rests with him, or with her, and the family physician is relieved of that responsibility. On the practical surgeon the writer would impress the clinical fact that early operations are almost always successful, and late operations are attended by a certain mortality. The ideal plan is to operate after thirty-six hours if the symptoms are serious, with a view to the reduction of the present small mortality. Besides the duty which belongs to the family physician, and the duty which devolves upon the practical surgeon, there is still a common, reciprocal duty that belongs to both. The mortality in appendicitis can only be reduced by a hearty, cordial cooperation of both physician and surgeon, and when these relations are established, the death rate, small as it is, will be still further reduced, and both the physician and surgeon can, by united action, contribute to the comfort and salvation of the patient. It is in this way only that the death rate can be reduced, and until the family physician and the practical surgeon meet on a common ground, and consult in perfect harmony, the death rate will remain where it is. On the other hand, with the establishment of more cordial and intimate relations between these two representative members of the profession, the small death rate in this disease will be still further reduced and both the physician and the surgeon will equally contribute to the one grand object, the saving of human life, than which no other calling or duty is more grand or noble in the history of the race.

THE RELATION OF PROTEIDS TO EDEMA IN MARANTIC CHILDREN; WITH URINALYSES IN INFANTILE DIARRHEA.*

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In an article entitled "A Study of 555 Cases of Summer Diarrhea," by C. G. Kerley, read before the American Pediatric Society in 1901 and published in the *Archives of Pediatrics*, the statement is made that brandy and whisky should not

* Read before the meeting of the Alumni Society of the New York City Hospital, October 14, 1903.

be used as stimulants because of the frequent involvement of the kidney in diarrheas of that character, and the consequent danger of provoking that common complication by the use of alcohol. At the time the paper was read there seemed to be a difference of opinion as to whether the kidneys were involved; and to settle this point to his own satisfaction, as far as is possible clinically, the writer, while House Physician at the Nursery and Child's Hospital, examined the urine of a number of children with acute fermentative or infectious diarrheas.

Cases were chosen for examination that came under one of the four following heads—and then only when the urine could be collected during the height of the attack: (1) Cases with marked diarrhea, high temperature, great prostration and blood or mucus in the stools. (2) Cases in whose stools the *Bacillus dysenteriæ Shiga* was found. (3) Cases whose blood serum agglutinated the Shiga bacillus—this test rests upon the authority of Dr. W. H. Park, of the New York Board of Health. (4) Cases marked by edema of some part of the body, with or without the presence of a marked acute diarrhea.

The idea in taking the acute cases was to avoid mistaking degenerative changes in the kidney, consequent upon the long wasting illness, for acute inflammatory processes due to the diarrhea itself. The second and third classes, viz., those in whose stools was found the Shiga bacillus or whose blood serum agglutinated those bacilli, were chosen because the specific infectious nature of the disease was considered proved and not purely dependent upon errors of diet. Although Dr. Joseph Winters, in the *Medical Record*, of March 7, 1903, considers the original bacterial influence as nil and errors of diet the entire cause, both predisposing and exciting, in all cases of infantile diarrhea. Special emphasis is laid upon the cases marked by edema, most of them occurring during an attack of diarrhea, because of the comparative rarity of this condition, the different theories of its etiology, and the absence of any regular and previously efficacious treatment.

In the first class of cases the results of but twelve urine examinations are given. The number is limited because the cases were confined strictly to the very severe ones—those with intestinal toxemia—and because of the difficulty of collecting the specimen, particularly in the female babies, before the usual treatment improved the condition. When the urine could not be collected until the condition had improved the case was not included in the list.

Of those 12 cases but one, Willie F., eight months old, showed any albumin in the urine and then only a slight trace. The child had a diarrhea for two days and at the time the specimen was obtained had a temperature of 104.4° F. Indican was found in the urine of but two.

Hyaline casts were found in two other specimens, both children being under four months old, at which age, little, if any, significance, can be attached to their presence.

In the second and third classes, in which the specific bacterial origin of the disease is considered settled, were four cases. The blood serum of two of these agglutinated the Shiga bacillus, taken from a pure culture, and in the other two the bacillus was found in the stools. The latter fact rests upon the authority of Dr. Steele of New Haven. In none of these cases of proved specific infection was any trace of albumin, or other evidence of inflammatory kidney process found.

The cases with edema are taken up in detail because this condition is rarely met with, and when it is, is usually ascribed to cardiac or renal disease, although apparently independent of either. The writer is able to find it mentioned in but one of the standard text books of pediatrics.

As dropsy in the legs frequently accompanies heart lesions, and in other parts of the body accompanies heart or kidney lesions, the presence of edema in infants naturally leads to the belief that one of these organs involved. Clinical evidence, however, would appear to show that this is not necessarily the case.

Edema in marantic infants during an attack of diarrhea, differs from the dropsy often seen toward the end of a long, wasting illness, such as pulmonary tuberculosis or carcinoma, in that it is not necessarily an ante-mortem sign. Of the six cases mentioned in this paper, five recovered. The individual cases were as follows:

Case I.—Six months old, weight 6½ pounds, vomiting, refusal of food, fever, frequent defecations of curds and mucus. Temperature 104° F. Barley water was substituted for milk and the usual medical treatment instituted. In next twenty-four hours the edema began in soles of feet, a slight reddening of the skin being the first thing noticed. In twenty-four hours the eyelids were puffy, in the next twenty-four the whole face became so swollen that the eyes could not be opened and the legs were also much swollen, with deep pitting on pressure over the tibia. While impossible to collect the total urine for measurement it appeared to be slightly less than usual. The results of the examination of the specimens collected were negative, the sp. gr. being 1.014, with no casts, no albumin, no indican. The hemoglobin was 70 per cent., the leucocytes 8,500 and the clotting of the blood apparently normal.

During the increase of the edema the regular treatment, dietetic and medical, for the preexisting diarrhea, was carried out. At the same time systematic treatment for the edema was instituted, as recommended in the only text book containing any information on the subject. Heat over the kidneys, diuretics, as spiritis etheris nitrosi, citrate of potash and fl. extract of digitalis, were all used, but with no decrease in the edema, nor improvement in the general condition. Finally all medication was stopped. The food, which during the worst part of the diarrhea, had been plain barley water and which now contained by the addition of 4 per cent. milk, .75 per

cent. of fats and proteids, was abruptly changed to a mixture containing 2½ per cent. of proteids and fats and in sixteen hours the edema had entirely disappeared. The general condition improved from that time, and continued to do so, although the food had to be carefully regulated.

Case II.—Age ten months, weight 8 pounds. This was a typical marasmus case, as will be seen from the age and weight. Brought in for bad, frequent bowel movements. On first examination soles of feet were slightly swollen. Twelve hours after admission eyes were puffed up and the child gained seven ounces in two and a half days. The regular, generally acknowledged treatment for the existing diarrhea would have been withdrawal of all milk, to avoid forming new culture grounds for the bacteria. The presence of the general edema was so ominous, however, and the child's general condition so bad, that, from the lesson of the previous case, the amount of proteids in the food was rapidly increased, with entire subsidence of the dropsy and a loss of 10 ounces in weight. The general condition rapidly improved under the increased proteids, although the stools continued somewhat frequent and curdy. The urine in this case during the height of the edema was voided but once in sixteen hours, and showed no indican, but did have a slight trace of albumin and a few hyaline casts. The hemoglobin was about 45 per cent. and coagulation apparently not retarded, leucocytes about 10,000, the proportions of the various kinds being about as usual.

Case III.—Ernest H., aged ten months, weight 9 pounds 8 ounces. This case had been in the hospital for several weeks with malnutrition, when the edema began. He was being fed on a mixture of 4 per cent. milk and barley water, in which the fats and proteids approximated 1½ per cent., the sugars six. On Sept. 27, his eyelids and feet began to swell, he gained rapidly in weight and many casein curds appeared in the movements, although the bowels continued regular. The proteids were lowered to one per cent., then raised to two per cent., and the milk peptonized. The edema disappeared and 11 ounces were lost in twenty-four hours. The urine and blood examinations were absolutely negative, the hemoglobin being 65 per cent. At the time of writing this child weighs sixteen pounds and is perfectly normal and healthy.

Case IV.—Stella S., aged three months, weight 7½ pounds. Was being fed on a mixture of 4 per cent. milk and Imp. Granum, 1½ oz. of milk to 3 oz. of Imp. Granum, a mixture in which the fats and proteids approximated 1⅓ per cent., the carbohydrates being high. On Oct. 17, almost a month after the appearance of any other case of edema, the temperature fell to 96° F., feet and then eyelids began to swell and six ounces were gained inside of twenty-four hours. Food was changed to a milk and whey mixture and the proteids increased to 2 per cent., then to 2½ per cent. and edema disappeared entirely in thirty-one hours. The bowels were disturbed in consequence of the increased strength of the food, but as the general condition improved and temperature rose to normal the formula was retained for one week. The urine in this case showed no albumin, no indican, a few hyaline casts, and there was no suppression. This child died seventeen days later of laryngeal diphtheria, twelve hours after intubation.

Case V.—Annie H., aged ten months, weight eight pounds eight ounces. Edema began on October 25 (during an attack of diarrhea) and progressed as in the other cases. The child voided urine but once in the first thirty-six hours after the edema began, and averaged in the next five days during which the edema lasted only four ounces in twenty-four hours. To contrast results the previously accepted treatment was adopted. Diuretics were given as in Case I, as well as the usual dietetic treatment for diarrhea, but edema persisted, although the condition of the bowels improved. On October 29, after dropsy had lasted four days, this treatment was abandoned and a milk and whey mixture given, and the fats and proteids rapidly increased to about 2 per cent., in addition to the lactalbumen in the whey. In thirty-one hours the edema had entirely disappeared and the general condition improved rapidly. The urine examination was negative in this case, as was the blood, the hemoglobin being 60 per cent.

Case VI.—Aged 3½ months, weight 6 pounds 2 ounces. A case of marasmus. Was put on a milk-whey mixture after coming in the hospital. On November 6, 1902, bowels became bad, and child was fed on plain whey. On November 17 edema began in the feet and progressed in the usual way but very rapidly, until the entire body, with the exception of the serous cavities, was much swollen. Urination apparently about as usual in frequency and amount. Weight increased eight ounces in three days. The bowels remaining bad, the child was still fed on whey, but two days after the onset of the edema, because of its rapid spread and in spite of the condition of the bowels, milk was added and rapidly increased with every feeding, until the proteids reached 2 per cent. plus the proteids of the whey. The edema decreased almost immediately and had entirely disappeared in two days. The urine showed no casts, and no albumin. The leucocytes were about 12,000 and the hemoglobin less than 40 per cent.

Case VII.—An Italian child, 4½ months old. Weight 4½ pounds. In this case diarrhea had existed five days before admission. The child had been fed on Russian tea and brandy and was in very bad shape. Within twelve hours after admission began to show edema. A combination of milk and whey, with the milk rapidly increased, was given, but not retained. After plain whey for six hours, during which the edema increased, small, repeated doses of milk and whey were finally retained. The edema entirely disappeared in 2½ days under increased strength of the formula. The urine was entirely negative, not even

hyaline casts being found. The polymorphonuclears outnumbered the lymphocytes. The hemoglobin was 50 per cent. The edema did not return and the child went out eighteen days later with a gain of eleven ounces and conditions much improved.

The heart sounds in all these cases were perfectly normal. Several theories have been advanced as to the cause of edema of this description. Dr. L. Emmett Holt thinks it due to the hydremia of the blood in the cases he has observed. Remlingen, in the *Revue de Médecine* of October, 1901, speaking of a few cases of edema without albuminuria observed in adults after severe or protracted attacks of diarrhea, ascribes the same cause. Dr. Rowland G. Freeman, from the cases observed at the Nursery and Child's Hospital, and at the New York Foundling Asylum, thinks it is of infectious origin. De Wolf, of Providence (*Archives of Pediatrics*, Dec., 1902) in describing an apparent epidemic of edema accompanying diarrhea in infants, considers it of renal origin dependent upon infection, presumably through the milk.

Of the cases here noted but two seemed to have any etiological relation. Cases II and III showed edema on the same day and were in adjoining beds in the same wards. All the others showed the condition at widely different periods and locations. The cases showing edema on admission to the hospital, entered after it had appeared in children already there, so could not have brought in the infection from the outside. As to the possible nephritic origin without albuminuria or other clinical evidence, the necropsy records for the past several years of Dr. Vanderpoel Adriance, pathologist of the Nursery and Child's Hospital, show that none of the cases with edema had any kidney lesions. L. Emmett Holt, in 70 autopsies on gastro-intestinal cases found but one affected kidney.

Dr. C. A. Herter—whom the writer is unable to quote verbatim, but from memory only—thinks the edema due to involvement of the sympathetic nervous system from severe constitutional depression. This view is certainly supported in the cases here presented by the improvement in the edema and also in the general condition, under an increase in the proteids in the diet. The usual dietetic treatment for diarrhea is of course the withdrawal of the proteid element in the food, but in cases marked by edema in mirantic children the constitutional resistance appears to be so slight that the proteids need to be retained and even increased, notwithstanding the locally irritant effect on the intestines. It appears to be a choice between aiding the general system and making the diarrhea worse—or rather not treating it after the generally accepted method—and improving the diarrhea with probably fatal consequences.

The recovery of the seven cases with the supposedly ante-mortem sign seems to warrant this statement.

To sum up: (1) Acute diarrheas—not protracted cases—are not accompanied by kidney involvement; (2) alcohol is not, therefore, injurious in this condition, if necessary for use as a stimulant; (3) edema during a diarrhea in mirantic infants is a bad sign, is not necessarily ante-mortem, is not due to the heart or kidneys and (4) the bad general condition is best treated by disregarding the diarrhea and increasing the strength of the proteids.

The writer is indebted to Dr. A. M. Thomas and Dr. R. G. Freeman for the privilege of making these investigations and of publishing the results.

DIAGNOSIS OF GALL-BLADDER DISEASES.

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THE diagnosis of cholecystitis, cholelithiasis, and cholangitis depends first, on the location of the inflammation or stone; second, on the degree and character of the inflammation, and third, to some extent on the size of the stone. The symptoms of these conditions vary from the well-known clinical picture of the so-called acute catarrhal jaundice to the obscure and indefinite symptoms of a chronic inflammation of the gall-bladder, which at times produce no symptoms at all.

To assert that the general diagnosis of cholecystitis and cholelithiasis is easy, and that the position of the calculus may in all instances be definitely determined is an acknowledgement of an unfamiliarity with the manifold intra-abdominal pathological lesions, which often present common and confusing symptoms.

The diagnosis of acute catarrhal jaundice offers probably as little difficulty as any of these conditions. A history of errors in diet, of a previously existing gastro-intestinal catarrh, age, young adult life, the appearance of jaundice and clay-colored stools, unaccompanied by pain or general emaciation, with little or no fever, urine containing bile pigment, and a slow pulse, form together a characteristic clinical picture, especially when there are no symptoms pointing to acute yellow atrophy, carcinoma or cirrhosis of the liver. When this condition develops in a patient, after the thirtieth year, we have a more difficult problem, as the above symptoms may mask a cholelithiasis, and pain similar to gall-stone colic can be caused by the expulsion of plugs of inflammatory mucus, closely simulating the passage of a gall-stone. A careful examination of the washed stools should be made, as some information may be gained in this way, although Naunyn has shown that gall-stones may be decomposed in the intestines. Chronic catarrhal cholangitis occurs in obstruction of the common duct, usually by gall-stones, less commonly by malignant diseases, strictures or by pressure on the outside. Osler recognizes two groups: (*a*) *Complete obstruction* of the common duct presenting chronic and intense jaundice without fever, a history of

previous attacks of colic, no, or very slight, enlargement of the gall-bladder; (*b*) incomplete obstruction of common duct when due to gall-stones presents recurrent paroxysms of pain, accompanied by chills, fever and sweats—the "Charcot hepatic fever." Jaundice is a variable symptom sometimes marked, other times slight. There is no enlargement of liver or gall-bladder and the health is not much affected. The condition is probably due to a repeated infection, not severe enough to cause suppuration. The blood must be examined in order to eliminate malarial fever, and if a tumor *is* present must have some other condition than obstruction of the common duct to account for it; either a growth, or an obstruction of the cystic duct.

Catarrhal cholangitis may extend into the minutest gall-ducts of the liver, and become persistent. The extrahepatic ducts then show little or no alterations. The important symptoms of this condition being a continuous jaundice and the course of the affection is that of hypertrophic cirrhosis.

Suppurative cholangitis usually follows immediately upon an attack of catarrhal inflammation or gives a history of such an attack. It is usually associated with gall-stones either in the ducts or gall-bladder, but not necessarily so. The symptoms are chills and fever of the remittent type, with grave constitutional symptoms indicating a septic pyemia, locally enlargement of the liver (in a badly infected case), colicky pains and jaundice, but not so marked as in the catarrhal form. The symptoms of this condition vary widely, depending on the character and amount of the infection, at times closely simulating abscess of the liver, and have been mistaken for malarial fever on account of the type of the temperature and sweats. The differential points between these two conditions are as follows: In abscess of the liver we find that the patient prefers to lay with head and shoulder high and slightly on the left side, there is progressive and rapid emaciation and anemia, jaundice very rare. Grasping the liver in any location will cause pain, pressure under the costal margin with deep inspiration will cause pain. Local edema is sometimes present and is a valuable symptom. The right lobe is most often affected, enlargement of the liver is first in the upward and later in the downward direction. Temperature is often high, at first 103° to 105° F., but may begin insidiously, and become intermittent and irregular, with periods of normal temperature. Pains of a dull aching character in region of the liver and right shoulder blade. There is generally a history of some primary infection; constipation is quite marked, with occasional spells of diarrhea.

In suppurative cholangitis there is a history of biliary colic and transient jaundice; no enlargement of the liver, except in the severe grades of infection. Pain located at tip of the ninth rib, which is extremely marked, and occasionally a pyriform tumor, caused by a distended gall-bladder when the cystic duct is obstructed.

Cholecystitis may be acute, subacute or chronic, with or without associated gall-stones. The acute cholecystitis is due to infection by a variety of micro-organisms, most commonly *Baccillus coli communis*, and typhosus, pneumococcus, staphylococcus, and streptococcus. That cholecystitis can occur without the presence of gall-stones is an indisputable fact, but that this is a rare occurrence we must admit, and therefore, when symptoms are present which point to a cholecystitis we generally expect to find associated with it the presence of gall-stones, and are usually not disappointed. That a differential diagnosis between the calculous and the non-calculous form of cholecystitis is at times possible, I believe, by a careful study of the symptoms, but as the treatment is usually operative in either instance, this is of no great importance.

The symptoms are as follows: Acute paroxysmal pain, usually in the right hypochondrium, less commonly in the epigastrium or ileæ (appendiceal) region, is the earliest evidence of the disease, quickly followed by nausea, vomiting, abdominal distention, rigidity and tenderness. Tenderness is at first diffuse, later localized, but unfortunately not always in the region of the gall-bladder. Usually there is obstinate constipation and at times even complete intestinal obstruction, neither flatus nor feces passing. It is only recently that cholecystitis without gall-stones has been recognized as a pathological entity. Maurice Richardson declares that it is more frequent in his experience than many other supposedly frequent intra-abdominal lesions. The diseases most frequently mistaken for acute cholecystitis are intestinal obstruction, appendicitis, acute pancreatitis, and perforating gastric ulcer. *Acute intestinal obstruction* has many symptoms in common with gall-bladder disease; viz., pain, vomiting, constipation, tympany and collapse, but the temperature is the important differential symptom. An increase in the temperature of more than 1° to 2° F. excludes intestinal obstruction, as a rule, prior to the developing of peritonitis, and if a tumor develops in the gall-bladder region, the diagnosis becomes less difficult, especially if the tumor has the characteristics of a gall-bladder enlargement, to be described later.

Appendicitis.—Most mistakes are made in differentiating from this affection and are at times unavoidable, as occasionally the clinical picture is precisely the same. A careful study of the history is perhaps the best guide, and again, a tumor in either the appendical or gall-bladder regions makes the diagnosis comparatively easy; but when we remember that in appendicitis the pain is sometimes referred to the region of the gall-bladder, and in cholecystitis to the region of the appendix, and all the other symptoms, mode of onset, etc., are at times identical, an exploratory incision becomes our only means of arriving at a diagnosis.

Acute Pancreatitis.—The histories of both diseases are very similar, the digestive disorders common to both. Jaundice may be present or

absent in either. Both may begin with sudden and violent pain, usually more marked in acute pancreatitis, which is located in the epigastrium, to the left side, while cholecystitis is a right-sided affection. Tenderness is very deep-seated in pancreatitis, and quite superficial in cholecystitis. If tumor is present in either instance it is deep-seated and diffuse in pancreatitis and more superficial in cholecystitis.

Perforating ulcer of the stomach and duodenum have been mistaken for cholecystitis, the location of the pain and rigidity being our only guides. Cholelithiasis occurs mainly in women, the percentage ranging from 65 to 75 of all cases; especially after having given birth to children. The patient is usually between forty and sixty years of age and rarely under twenty-five years. Gormandizing, sedentary occupation, constipation and tight lacing are all predisposing causes that should be studied carefully. C. D. Mosher (*Johns Hopkins Hospital Reports*, 1901) gives the following conclusions for 1,655 autopsies (6.49 per cent. American to 12 per cent. German women): in other words, 1 in every 10 American women, and 1 in every 5 German women have gall stones. As to color, whites average 7.85 per cent. to 5.57 per cent. colored. An idea as regards the frequency of this disease can be gathered from Schroeder, who finds that 12.5 per cent. of all autopsies show gall-stones, and Kehr, who records 360 operations on the gall-bladder and ducts, of which 307 were for gall-stones.

Premonitory symptoms frequently occur, and are valuable aids to diagnosis. They are as follows: Constipation, flatulency, loss of appetite, vertigo, tinnitus aurium, migraine, urticaria, icteroid tinge, and scanty, dark urine. A combination of some or all of these symptoms should put us on guard for a possible oncoming attack of the so-called gall-stone colic.

Pain is sudden in onset and much diagnostic significance is attached to the time of its occurrence, which is usually at night, during the relaxation of sleep, but it may occur at any time; and any violent exercise, vomiting, coughing, etc., may precipitate an attack. In the beginning, the pain is usually located in the epigastric region. Later the right hypochondrium is affected and is ofter referred to the back, under the angle of the scapula; then the right shoulder and arm (*never down the arm*); rarely to the sacrum or hip. Pressure over gall-bladder will sometimes relieve the patient temporarily. The pain is intermittent, and may last from a few hours to a few days with complete or partial intermission. The pain is described as agonizing and much more severe than the pains of labor. The fact of the great suffering is depicted on the face, with marked depression, rapid respiration, cold sweats, frequently with a temperature of 103° to 104° F. Pulse rapid and weak, and at times weak, but slow.

Vomiting is usually present and is probably reflex. It seems to give temporary relief and not infrequently the colic disappears during an emesis.

Shock, of a varying intensity, occurs from a feeling of weakness to a condition of collapse, and death has occurred during the height of a paroxysm.

Pulse and Temperature.—There is quite some disagreement in reference to the pulse rate and the statement has been frequently made that a slow pulse is always present, but there are too many exceptions to this to allow it to be considered as a safe rule. If there is an infection the pulse is accelerated, and a persistent, rapid pulse is, as in all other abdominal diseases, of grave significance.

Temperature during the shock is often subnormal, but with a cold and clammy skin. The rectal temperature is sometimes found to be from 102° to 104° F., and in some patients chills and sweats, closely resembling malaria is present. Jaundice is a most unreliable symptom. From 1890 to 1902 Kehr performed 720 operations for gall-stones and jaundice was absent in 80 per cent. of the cases in which stones were located in the gall-bladder and cystic duct; and absent in 30 per cent. of the cases with obstruction of the common duct. When jaundice does appear, it usually comes on at the end of the first day or during the second day, after the acute paroxysm, and appears, first, according to Douglas, on the right side of the abdomen. Bile can often be found in the urine. The size and location of the stone, and the completeness of the obstruction determines the degree of jaundice, obstruction of the common duct being, therefore, more productive of jaundice than obstruction of the cystic duct.

Stools.—In obstruction of the cystic duct no decolorization of stools occur and in fact the obstruction must be absolute. It is a common occurrence to have marked jaundice with normal stools.

The urine shows bile pigment as a rule, but only when there is jaundice. The amount of urine is usually increased at first and contains some albumin and if the attack persists the urine becomes more scanty, and casts and albumin are usually found, and may be a forerunner of convulsion and death.

The local physical signs are of great importance and must be carefully studied. The tumor of the gall-bladder when present is a great help in making a diagnosis but, unfortunately, this does not always exist. In acute obstruction of the cystic duct a tumor is usually found and is typical, being round, smooth, and elastic, and when palpated and pushed away from the abdominal wall will return to the examining finger as if swung on a pendulum. In chronic cholecystitis with adhesion an irregular mass can sometimes be made out. The gall-bladder tumor responds to respiration. Crepitus can sometimes be felt. If Riedel's lobe can be felt with its sharp edge lying across the tumor it is pathognomonic of gall-bladder enlargement.

Roentgen rays have proven of but little value in the diagnosis of gall-stones.

In attempting to make a differential diagnosis in gall-stones we are at times compelled to eliminate almost every other intra-abdominal disease and in a short paper of this kind only the conditions which frequently and closely simulate it will be considered, and in order to avoid reiteration no mention will be made of acute intestinal obstruction, appendicitis, pancreatitis and perforating ulcers as they have already been described under the differential diagnosis from acute cholecystitis and will conclude with a few words descriptive of some other diseases that have been mistaken for cholelithiasis.

Gastralgia has been mistaken for gall-stones and diagnosis can be built upon the following points, found mainly in neurotic and hysterical patients: Pain comes when stomach is empty and is generally relieved by warm drinks or food. Pain is usually in the left side of hypochondrium and referred to left thorax. Pulse usually feeble and irregular, only slight tenderness and no tumor.

Non-perforating Gastric Ulcer.—Pain after taking food, often marked anemia, hematemesis frequent, and stools show some decomposed blood. Tenderness over seat of ulcer, also two inches to left of twelfth dorsal vertebræ, with rigidity of left rectus muscle.

Intestinal Colic.—Patients with this affection generally have diarrhea and some general muscular cramps; pain is referred to umbilical region with history of errors in diet or exposure to cold or exhaustion. Free bowel evacuation will usually cure and thus clear up the diagnosis. Malarial fever sometimes closely resembles calculus in the common duct. Quinine and blood examination will usually straighten out this tangle.

Carcinoma of Gall-Bladder.—Generally the patient is over forty years of age. Early cachexia, pain more constant and not so severe, jaundice comes on slowly and persists, enlargement of the liver, edema and ascites gradually develop and blood shows the usual changes found in carcinoma.

Movable Kidney.—Most frequent in thin and nervous women, pain in the lumbar region and referred downward, tumor is easily felt and grasped between the hands, not usually influenced by respiration. Shape is characteristic, and when mass is pushed back to its proper place in the loin, will stay there quite a time.

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Dr. Pearson Reappointed.—Dr. Leonard Pearson, of Philadelphia, has been reappointed State Veterinarian by Governor Pennypacker. Dr. Pearson held this position under the two preceding administrations.

THE DIAGNOSTIC VALUE OF THE ROENTGEN RAYS.*

BY CHARLES LESTER LEONARD, A.M., M.D.,
OF PHILADELPHIA.

In dealing with the difficult problems of medical and surgical diagnosis, the practitioner is often confronted by a symptom complex that defies solution. As a result new methods of physical diagnosis have been developed and the resources of chemistry and physical science have been utilized. Physical diagnosis is thus largely based upon the discoveries of pure science adapted to its problems.

The rapidity with which the Roentgen rays have been developed into an accurate method of diagnosis shows a quick appreciation of their value to medical science. The expert diagnostician readily realizes the chances of error, and gladly welcomes new methods that will confirm his results. Thus, it has been, that the greatest encouragement in the development of methods of precision in applying these rays in diagnosis, has come from those most scientific and expert in medical and surgical diagnosis. They too, are the most eager to employ it, since it insures greater accuracy and confirms the diagnosis formed by other methods.

The late Dr. William Pepper appreciated the value of the Roentgen method in the diagnosis of thoracic aneurisms. In discussing the first series of these skiagraphs made for him in 1896, he said "that their value to him could not be expressed, since they formed a visible confirmation of the mental pictures he had been making for more than thirty years."

The particular element in this method that gives it precision and makes the data obtained more valuable is the mechanical element. The value of any physical method of diagnosis is increased whenever this mechanical element predominates over the personal element and eliminates to a greater degree the error always liable to be introduced by the personal equation.

Wherever the Roentgen rays have secured, mechanically, data upon which a diagnosis can be based, they have increased the accuracy. Their use does not wholly eliminate the personal equation or the skill of the observer. Sufficient of these elements enter into the final results to frequently render them far from accurate. The skill and experience of the diagnostician must always be taken into consideration. Equally good results should not be expected from the expert and the novice. The utmost care and attention to detail, and a full knowledge of the instruments he is using, are demanded of the expert to obtain accurate results. The necessary knowledge and technic are not readily acquired and earnest study is demanded of the student if he would learn to avoid errors. The apparatus and the method have often been blamed for the inexperience and errors of the observer. Clinical experience is of equal value in this as in other

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methods of diagnosis. The expert diagnostician with other methods can acquire skill with this method and in its interpretation with greater ease than the inexperienced. His clinical knowledge of conditions and possibilities leads him to employ it more efficiently.

The mechanical element does not enter so largely into the fluoroscopic method of diagnosis. The data obtained are not registered mechanically on a photographic plate, but are only caught upon the retina. The result is that these data are often what the observer thinks he sees and not what exists. Valuable data can undoubtedly be obtained by the study of the fluoroscopic picture, as well as expertness in its use and interpretation, but it can never approximate the accuracy of the skiagraphic method, since it lacks the mechanical element of registering the observation.

A review of the entire field in which the Roentgen method has demonstrated its diagnostic value, or even a brief discussion of its advantages in its varied applications, is impossible in the limits of this paper. I shall, therefore, confine myself to a discussion of its value and advantages in calculous nephritis and ureteritis. The conclusions deduced are based upon the study of three hundred cases that have been referred for examination and diagnosis. The advantages demonstrated are a greater accuracy than other methods of diagnosis. An equal accuracy in the positive and negative diagnoses. A freedom from all the dangers and inconveniences common to exploratory operations, vesical examinations and ureteral catheterizations. The possibility of an early accurate diagnosis as soon as the suspicion suggests the possible presence of a calculus. A greater comprehensiveness definitely excluding or locating all calculi; giving their size, location and number, whether one or both kidneys and ureters are involved. This greater detail in diagnosis localizes and limits the operative intervention. It renders incision into the kidney unnecessary, except for macroscopic lesions; and has given rise to a conservative expectant line of treatment, that is rational, because it guards the integrity of the kidney.

An analysis of the three hundred cases that have been examined shows that calculi have been found in 86 cases, or over 28 per cent. That in 46 of these cases, or over 50 per cent., the calculi were in the ureter. That in nineteen of these cases of ureteral calculus the patients passed the calculi after expectant treatment had been suggested as the result of the Roentgen examination. The positive diagnosis has been confirmed by operation in all cases operated upon except five. In two of these cases the operation was delayed more than a month after the diagnosis had been made. As these were both small calculi it is very possible they had passed. The author has frequently advised immediate operation, or the repetition of the examination before operation if it has been delayed, and the search of the bladder just prior to operation with a Bigelow's evacuator, in all cases of small calculi. In two of my cases the stone has passed into the bladder between Roentgen examinations, and has been subsequently detected after its passage through the urethra. In a third case the interval was not so long, but the vesical examination was omitted, though the patient had had an attack of colic between the examination and the operation. In the two cases where the operators failed to find renal calculi the patients weighed over two hundred pounds and were corpulent. The diagnosis rendered in each case was probable stone or incrustations of crystals with a mass of débris in the pelvis of the kidney. This diagnosis was necessary because the plates did not have sufficient definition to warrant an absolute diagnosis of stone. In one case it was impossible to repeat the examination and in the other the danger of burn made it seem unwise. In one nothing abnormal was found to account for the symptoms, but the patient recovered and is still in the best of health. In the other a mass of pus and crystalline débris was found. In both cases operation was absolutely necessary.

The ease with which calculi can be overlooked during an operation is illustrated by the following case: Mrs. M., about forty-five years of age, quite stout, had suffered for the previous five years with a constant dull ache in the right hypochondriac region with frequent exacerbations of pain. Urine was cloudy, showed pus, uric acid crystals and red blood cells. A Roentgen examination showed a fairly large calculus, the shadow was not very opaque. She entered a hospital two weeks later where they failed to find the calculus by the Roentgen examination, and also in the subsequent operation. She came under the care of Dr. G. G. Davis eight months later with a persistent urinary fistula. He operated and removed a phosphatic calculus thus confirming the diagnosis.

The negative diagnosis has been found as accurate as the positive and even more so. This diagnosis has been found correct in 45 cases that have come to operation after the negative diagnosis had been made. In one case, previously reported, a large calculus was found, the error being due to faulty technic in placing the plate and in the subsequent reading. In two other cases small calculi have been passed after the negative diagnosis had been rendered. The negative diagnosis has been confirmed in many other cases by their subsequent developments. In two case phleboliths have been found that suggested ureteral calculi. One was known to be present in the wall of the vagina, and the multiple phleboliths eight in number in the other case were found on operation in a varicocele of the veins of the broad ligaments. This patient had had for a long time obscure symptoms. The ligation of the varicose veins resulted in her cure.

The total combined error in both positive and negative diagnoses is less than three per cent. This method has never been considered infallible, but the amount of accuracy obtained is greater

than that of any other method. Equal accuracy is claimed for the negative and positive diagnosis. This claim was made by the author for this method in 1898 and his results since that time justify the claim. In every case all the knowledge that can be obtained by all methods of diagnosis is none too much, and every case should be carefully studied by all means at command including the Roentgen method.

The further value of this method, in directing and facilitating operation, and in rendering operation unnecessary and expectant treatment safe, will be illustrated by the study of certain cases and groups of cases, in which its effects upon operative procedure have been shown.

The group of 19 cases in which the expectant line of treatment was advised and resulted in the passage of the calculi without operation, shows the advantages of this method as a basis for treatment. It is more accurate, as shown by the increased ratio of ureteral to renal calculi. Fifty per cent. of the calculi detected entered the ureter before producing sufficient symptoms to call for the attendance of a physician. It is highly probable that many more pass through the entire urinary tract; while post-mortem findings show that many calculi remain undetected in the kidney without producing symptoms.

Undetected quiescent calculi, especially if small, are a constant menace to the integrity of the kidney. They may have already occluded the ureter, or they may at any time do so and produce a unilateral anuria and the destruction of the kidney, or even complete anuria that will threaten the life of the patient. The subsidence of symptoms after an attack of ureteral colic is no guarantee that the calculus has passed or that the urine is able to flow past it. Complete obstruction menaces the functional life of the kidney, and yet all symptoms may subside and the condition absolutely simulate recovery. They can only be differentiated by the observation of a bilateral urinary flow with the cystoscope. The condition is entirely altered by the recognition of a calculus and the determination of its absence after the subsidence of symptoms, or after all those that have been detected have been passed.

The recognition of the presence, position and exact size and number of these small calculi has rendered rational a course of treatment that would otherwise be extremely hazardous. It has also justified the establishment of an expectant conservative line of treatment in cases where calculi are found small enough to pass through the ureter. Such an expectant conservative treatment was suggested by the author more than two years ago, as the result of his experience with these calculi (*American Medicine*, November 30, 1901). That such treatment is justified is proved by the series of 19 cases in which such small calculi have been passed. The period between their detection by the Roentgen rays and their passage has varied from five days to eight months. Such a course of treatment cannot be advised until a careful study by other methods has been made, and then the patient must remain under careful medical supervision. Immediate operation is sometimes necessary or may be called for by threatening symptoms. It has been necessary in three of my cases. In the first the diagnosis was made during an acute attack. There were no symptoms of progression on the part of the calculus, the pain was constant and severe, and the temperature pointed to infection. The calculus had been located an inch below the lower pole of the left kidney and was removed by direct ureterolithotomy. The wound healed rapidly and the patient made a complete recovery. The calculus was of the mulberry variety and very rough. This accounted for the intense pain, the difficulty in passing and the final impaction. In a second case impaction was complete at the point where the ureter crosses the common iliac artery. In this case all pathological elements were absent from the urine. The calculus was removed by a transperitoneal ureterolithotomy.

The third case was of special interest and illustrated as well, the precision of this method and the minuteness of the calculi that can be detected: A young married woman, of twenty-six years, had had a series of severe attacks of ureteral colic. She was examined at her home between attacks. Three very small calculi were found in the juxta-vesical portion of the ureter. The series of colic attacks made it seem probable that they would be expelled. The symptoms became grave and operation was necessary. It showed the three calculi in the exact position indicated, completely obstructing the ureter. They were removed and the pyonephrosis drained. The patient has completely recovered. In none of these cases was it necessary to explore the kidney.

Another group of cases illustrates the inaccuracy and incompleteness of operations without the aid of this method. They also show how this method increases the precision and completeness of operations and decreases the amount of operative trauma. The increased detail afforded by this method of diagnosis guards against the errors which were formerly made where there were multiple calculi in kidney and ureter, or in both urinary tracts at the same time. The position of all calculi is now determined before the operation is commenced. In three cases calculi have been found by the skiagraph in one kidney after operation upon the other, and in two of these cases calculi had been overlooked in the kidney operated upon. In another case an operation disclosed a fascetted calculus, the patient was too weak for the search to be continued; further operation was postponed and a Roentgen diagnosis made. This showed ten calculi remaining, located in both kidneys and ureters. They were all removed at later operations and the patient made a complete recovery.

In three other cases previously reported calculi were found at the operation, only because they had been previously located by this method. In three cases persistent urinary fistulæ, following unsuccessful nephrolithotomy, were found to be

due to calculi that had not been found, blocking the ureter. Operative procedures have been facilitated in many other ways. Calculi have been removed through incisions that just admitted a finger that were made directly on the calculus, thus decreasing the trauma and operative risk. Others besides those mentioned previously have been removed by ureterolithotomy, either transperitoneal, rectoperitoneal, through the vaginal vault or through the bladder. In all these cases it was unnecessary to touch the kidney.

The accuracy of the negative diagnosis is attested by the 45 cases that have come to operation after this diagnosis had been rendered. In some of these cases the surgeon expected to find a calculus, but in only one case has a calculus been found.

This accuracy has led to the belief that where an accurate Roentgen diagnosis shows no calculus is present in the kidney, incision into the kidney is not justified, during an operation otherwise indicated, unless some other macroscopic pathological lesion is present.

In a case recently examined a negative diagnosis was rendered. The definition was so clear that a displaced left kidney could be seen, its lower pole on a level with the crest of the ileum. Such a displacement was sufficient to account for the symptoms and so much definition clearly excluded all calculi. The kidney was, however, opened during the nephrorrhaphy and a search for calculi was made, thus increasing the operative risk. The patient unfortunately died.

In favorable cases, that is, in patients weighing under 140 pounds, detail can often be obtained of the soft tissue structures that will suggest some condition other than calculus that is present. Thus displaced kidneys, pyo- and hydronephroses and even small collections of pus in the pelvis of the kidney have been observed and afterward confirmed by operation. As small an amount as an ounce of pus has been recognized by a shadow and subsequently removed by catheterization. The mottled appearance presented by the tuberculous or cystic kidney has sometimes been noted. These detailed diagnoses are exceptional and can as yet be made with no certainty and only in favorable cases.

The accuracy that has been obtained in calculus diagnosis is the result of an improved technic, further improvements may result in greater accuracy in other fields.

The author's technic in calculus diagnosis is based on the axiom that where shadows less dense than the least dense calculus are obtained no calculus should escape detection. Accurate results in both the positive and negative diagnosis can be guaranteed by a technic capable of making such negatives and clinical experience that can recognize when they have been obtained, and read them correctly.

The essentials of the technic developed and used by the author in this series of cases are: a self-regulating tube that will maintain itself at a low vacuum steadily during the entire exposure, thus guaranteeing the non-penetration of the calculus. It must be possible to repeat the exposure at any later period under identical conditions. The coil or source of electrical energy must produce a large volume of Roentgen rays of low penetrating quality.

One of the greatest difficulties in Roentgen work is in recognizing when the tube is producing the requisite volume of Roentgen rays. The vacuum of the tube bears a nearly constant ratio to the penetrating quality of the rays, but varies with the kind of tube and the form of apparatus used to energize it. The vacuum employed by the author is equivalent, on his apparatus, to a parallel spark in air measuring 1½ to two inches. Unfortunately this measurement is only relative and accurate only for similar apparatus. The Roentgen ray producing efficiency of various types of apparatus can only be measured by experience. A technic developed with any combination of apparatus, which can consistently produce negatives containing the necessary amount of definition, if a low vacuum tube is used, should be capable of making accurate negative and positive diagnoses. The low penetrating quality of light is essential to prevent the penetration of small uric acid and phosphatic calculi. The ability of the tube to maintain steadily the desired degree of vacuum is of the greatest importance as any variation results in the penetration of these less opaque calculi.

The value of the Roentgen method of diagnosis in this field has been demonstrated to be greater than any other known method. It has already rendered operation unnecessary in a number of cases, and has increased the value and efficiency of operation, while lessening its dangers and minimizing the amount of operative trauma.

THE VALUE OF CLIMATE IN GENITO-URINARY TUBERCULOSIS.*

BY W. H. PRIOLEAU, M.D.,
OF ASHEVILLE, N. C.

IN the accepted hygienic and dietetic treatment of tuberculosis of the lungs, one of the most important laws laid down, is that the patient should, if possible, seek a change of climate so soon as the disease is recognized. This should apply not alone to the victim of pulmonary tuberculosis, but equally so to the tuberculous disease when located elsewhere, whether in the larynx, kidneys, bladder or joints.

When the lungs only are infected, a cure is much more favorable than when any other organ is the seat of the disease. There are several apparent reasons for this—the diagnosis is made much earlier in pulmonary tuberculosis and the disease is generally confined to the lungs; whereas when any other organ is tuberculous, the process, as a rule, is secondary. At the same time, if the infection happen to be a primary one, it is

* Read by title at the Second Annual Meeting of the American Urological Association, May 8 and 9, 1903, New Orleans, La.

rarely recognized as such in time for successful treatment to be commenced. For example, a patient comes to the office, complaining of weakness, extreme lassitude and drowsiness in the afternoons, some slight morning cough and perhaps a little expectoration; at once, even without waiting for the tubercle bacilli to be found in the sputum, a diagnosis of incipient infection of the lungs is made and systematic treatment is begun.

Again a patient consults you about a frequency of urination, possibly he has the morning drop or may be a slight watery excess from the urethra. Almost the last disease one would think of would be a tuberculous eruption of some part of the genito-urinary apparatus. More than likely it would be considered the result of a venereal infection; especially so, if the patient had ever had specific urethritis. If, when the disease is primary, it were recognized in its incipiency, I believe the results would be almost, if not quite, as good as are now obtained in pulmonary tuberculosis.

It is an acknowledged fact that the hygienic-dietetic treatment of tuberculosis of the lungs yields the greatest number of cures when begun in the pretubercular stage of that infection; the same may be expected in genito-urinary tuberculosis, provided we begin our treatment sufficiently early.

The constitutional treatment of tuberculosis, wherever the process may be located, is the same. Such being the case, we know that climate is a powerful adjuvant to our treatment. It has been my limited experience that that climate which gives the best results in pulmonary tuberculosis also does most good in tuberculous infections of the genito-urinary apparatus. The mountain climate of a moderate elevation, where the air is dry and there is a maximum of sunshine throughout the year, offers, as a general rule, most to the tuberculous invalid, no matter where his infection is located. As there are exceptions to all rules, so not infrequently do we find cases which respond to treatment more readily at the seashore, or in the pine-land region, only a few feet higher than the sea-level. This is apt to be the case with those infections contracted in the mountains, and also with renal tuberculosis. At no time should a patient with tuberculosis of the kidney be sent to an extreme altitude; the increased heart's action caused by the elevation adds more work to the already inflamed kidney and thus does away with the benefit which might otherwise be expected from the climate.

As a general rule, it might be said that a moderate altitude, when it suits a case, is the most desirable; for when a patient regains his health at such an elevation he can return home with less likelihood of the disease reappearing; whereas, if he had regained his health at a very high altitude, it is questionable whether it is ever advisable for him to leave there.

While climate is a most valuable adjunct to the treatment of genito-urinary tuberculosis, at the same time it cannot effect a cure by itself. More important even than climate is diet; and then come the adjuvants, according to the organ or part of organ diseased. It is true of the tuberculous invalid, as it is of the healthy man, that it is only the assimilated food which nourishes the body. Superalimentation most undoubtedly does harm in urinary tuberculosis.

Excessive ingestion of food means extra work for the kidneys, besides the overproduction of uric acid xanthin, etc. The extra work imposed on a diseased organ would produce sufficient injury by itself; but along with the increased work, we have the passage of irritants through the kidneys, bladder and urethra. If any of these be diseased, the inflammation would be increased by the acid urine. Just as we avoid overfeeding because of the extra work and production of irritants, so we eliminate from the patient's diet all foods and drinks which are known to be genito-urinary irritants; namely, tomatoes, strawberries, condiments, alcohol and carbonated waters.

If the sexual apparatus is the seat of disease we should endeavor to have the patient control his feelings as much as possible and avoid all mechanical irritation.

Instrumentation of the tuberculous genito-urinary apparatus is seldom advisable; the friction caused by the passing of an instrument over a localized tuberculous spot only increases the process.

In all cases of genito-urinary tuberculosis, we must rely on hygiene and diet; and as adjuvants, use urinary antiseptics and sedatives; always remembering to select a suitable climate for the patient, as you would do were his lungs diseased.

SEASICKNESS.

BY WILLIAM F. WAUGH, A.M., M.D.,
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If anyone possesses a theory as to the treatment of seasickness, he should be very careful of it, as it is fragile property, easily damaged. Especially should he avoid the vicinity of water, for dampness is fatal to it. The theory should not be allowed to come within 100 miles of a steamer.

Leaving Chicago Saturday evening, on Sunday we encountered a brisk head wind; the waves tumbling in confusion, and here and there a white cap. Nothing special to a man who has seen Old Ocean in his boisterous moods, while Boreas played horse with him—and yet of our 100 fellow-passengers nearly all succumbed. The writer, old sea-dog too, surrendered at once; but he is an expert in this malady, feeling its effects always by car, even on the city cable cars or in a carriage. And yet the good ship "Georgia" did not roll and only pitched gently with a long easy swing that had no savor of the disagreeable in it. If this note, perchance, catch the eye of anyone who voyaged in that ancient tub the U. S. S. Swatara, second rate, and recollects the roll of 42 degrees—sideways—and the combined pitch—

fore-and-aft—ending with a jerk like the crack of a whiplash, they—well, they haven't forgotten.

The theories as to the nature and causes of seasickness are good—all of them. Possibly some of our fellows in misery were bilious, probably some had overloaded stomachs and bowels; but obviously this does not account for the unanimity with which all paid tribute to Neptune's representative on these waters. Ocular deficiencies may have a part, for the unaccustomed strain on the accommodation proves trying, and induces headache, relieved by closing the eyes.

But there appears to be a state induced in most persons by the unaccustomed motion that is analogous to that caused by snake venom—a paralysis of the abdominal vasomotors with accumulation of the blood in the viscera and consequent anemia elsewhere, especially in the brain. *Hinc illæ lachrymæ*—hence the gastric hyperesthesia. And is not the stomach hyperesthetic! Mark Twain remarked: "On the second day out I hove up my immortal soul." And really, our hopes too, for after completely emptying ourselves we took a minute granule, but the stomach found it and brought it up—and we really hope the soul is not still more infinitesimal.

Now, if this vasomotor splanchnic paresis theory is good, the same remedy that has proved effective in snake bites should answer here—strychnine, in doses enough to restore a normal pulse. It has already been shown that atropine, just enough to obviate the cerebral anemia, will relieve in many instances; and yet the strychnine seems more directly applicable. There is no reason why they should not be given simultaneously, as in this instance they are synergistic. Or, better, give in alternation, since each has its own indication of full effect. Give to an adult atropine gr. $^1/_{1000}$ every ten minutes until slight dryness of the mouth is felt. This is invariably the first evidence of its action, and neither dilatation of the pupils nor flushing of the face are requisite for the full therapeutic effect, except in cases of hemorrhage, where it is an object to get the blood into the cutaneous capillaries and out of harm's way as quickly as possible. The therapeutist, whose work is regulated with precision, will suspend atropine as soon as the mouth begins to be dry, and administer another dose of similar dimensions only when the dryness begins to subside. In this way all unpleasantness is avoided and yet the full benefit secured.

Strychnine should be given in doses of gr. $^1/_{134}$ —half a milligram—every ten minutes until the pulse has acquired normal tonicity, and thereafter just often enough to sustain this effect. This allows for all possible variations as to susceptibility, idiosyncrasy, degree of severity of the attack and obstinacy of its effects, etc. To those unaccustomed to dosage regulated by effect, the quantity required in some instances will seem enormous, even perilous; yet nothing is safer, surer. If gr. $^1/_{40}$ of strychnine is sufficient to relieve the vasomotor paresis present, give that much and then stop it; if the depression is so profound that half a grain is required to restore tonicity, give that and quit—or rather follow with enough to maintain the effect, since the cause is continuously acting.

And do not let the patient mope. The best way to be seasick is to sit gazing at the waves and think how sick you are. To deepen and prolong an attack, go to bed and give up. "Resist the devil and he will flee from you," and no one who has suffered with this fiendish malady will for a moment doubt its satanic personality. Resolutely walk it off; keep busy; get the thoughts off yourself and on anything capable of distracting the mind from introspection; and the attack will be soon over. Was there ever a case of such severity as to justify the recommendation of a Frenchman, to stupefy with chloral and remain in that condition during the entire voyage?

Anticipate the voyage by clearing out the alimentary canal and practise a salutary abstinence before and during the trip. Determine not to give up if taken, but fight it out. Take the remedies advised, in a spoonful of hot water—the naked alkaloids are thus very quickly absorbed and the hypodermic syringe is superfluous. Don't take all the numerous remedies suggested but cling to a really scientific treatment, based on a clear idea as to the pathology.

Have I tried this theory in practice? Well, no; not yet. You see it is still young, just new-born in fact, and one should not recklessly expose it to the whims and arrows of outrageous fortune, until it has gained some strength.

MEDICAL PROGRESS.

MEDICINE.

Acute Dilatation of the Heart.—A most interesting and exhaustive article by D. DE LA CAMP is contained in the Zeitsch. f. klin. Med., Vol. 51, Nos. 1 and 2, and materially increases one's knowledge of the etiology of acute dilatation of the heart. In all the experiments the size of the heart was measured by the Roentgen rays, so that the results must be looked upon as absolutely accurate. In the first series, a large number of patients were requested to work a specially constructed apparatus to the limits of endurance, and the skiagraph was then compared with the one taken several hours before. The endurance was greatest in convalescents from mild disease, least in those afflicted with neurasthenia and hysteria, but an increase in cardiac volume, sufficient to warrant a diagnosis of acute dilatation, was absent, even in myocarditis and endocarditis. Only one girl, suffering from severe loss of compensation, secondary to a mitral lesion, presented a marked increase in size after a walk of one hour, which considerably taxed her strength. Healthy porters were then instructed to wrestle up to exhaustion, with absolutely negative results, even when circulation was embarrassed by a tight band around the abdomen and dyspnea and cyanosis were marked. Large doses of alcohol and forced respiratory movements were also without result. The following experiments were then made with animals: (1) A dog is forced to rotate a wheel until exhausted for several days in succession, so that the animal finally dropped as if dead. No increase in vol-

ume could be detected. (2) The vagus was irritated with the faradic current till heart action ceased. An acute dilatation of the ventricles set in. (3) Traumatic aortic insufficiency had no effect. (4) Introduction of air into the veins caused death by acute dilatation. (5) Saline infusion till the heart stopped beating was without influence. (6) A fatal dose of digitalin caused contraction of the ventricles and dilatation of the right auricle, with general change in shape. (7) Muscular exertion after daily venesections and starvation had no effect, but acute dilatation was very marked, if the animal was fatigued after the contents of a tuberculous cavity or some other toxic material was injected. (8) Phosphorus and oil of pennyroyal caused a fatty degeneration of the heart, and some relaxation, not amounting, however, to dilatation. (9) A strange behavior was noticed when all extracardial nerves were severed, the animals became fatigued after the slightest exertion, yet the heart-shadow remained nearly normal. All the experiments proved that a normal heart, or one the seat of only slight lesions, is incapable of overdistention, no matter how its working-capacity is taxed. The records of a number of cases of dilatation observed by the author are in accord with this, for in all there was some serious lesion. In the non-fatal cases this may not be evident; the heart may possess its normal size and beat normally after the attack is over. But a careful history and examination will always disclose some previous, not necessarily severe, infection or some chronic systemic derangement, which is sure to alter the heart muscle. It cannot, however, be denied that the healthy heart may occasionally dilate when several injurious factors act upon it at the same time. Thus, besides overexertion, there may also be the coincident ingestion of too much fluid. Soldiers marching long distances, when heavily laden, sometimes suffer from attacks and the effects of rarified air in mountains are undeniable, though not readily explained.

Palpation of the Pylorus.—Many patients have been sent to P. Cohnheim (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 3 and 4), with a diagnosis of carcinoma of the stomach, and yet presented only a normal, large pylorus in an abnormal location. Pseudotumors of the abdomen generally include abnormal contraction of the recti muscles, hypertrophic left lobe of the liver, thickening of the aorta and adhesions about the smaller curvature, but a normal pylorus may also impose as a neoplasm. It is generally found in thin people with relaxed abdominal walls and often diastasis of the recti exists. A large number of the patients are consumptive. The condition may sometimes be diagnosed by seeing the pyloric contractions, but far more often they can be felt moving from left to right if the hand is placed lightly upon the tumor after the patient has swallowed some water. A hard tumor will alternately develop and disappear. The contractions are usually not painful, unless an ulcer or pyloric fissure is present. If the tumor does not soften and disappear, but remains permanently hard, a carcinoma is probably present.

Rare Complications of Carcinoma of Stomach.—A patient suffering from an inoperable carcinoma of the pylorus was subjected to gastro-enterostomy by F. Kaufmann (Münch. med. Woch., Nov. 10, 1903), when severe motor insufficiency and intestinal stenosis developed several weeks after the operation, and the patient finally died of perforative peritonitis. Involvement of the intestines in gastric cancer is not rare; the stools are said to be normal throughout the course of the disease in only 4 to 5 per cent., and in fully two-fifths constipation persists at first and diarrhea later on. Stenosis, however, is very infrequent and may be due to the primary tumor, where the ligaments are so short that the colon cannot be displaced, or to growth in the intestinal wall itself, either by extension or metastasis. A gastro-colon fistula with feculent vomitus would speak for extension, but generally the exact diagnosis is impossible. In a second case, a stenosing carcinoma of the cardia, complicated by pyloric stenosis, due to metastatic glands, was found to explain the high degree of dilatation and motor insufficiency in a stomach whose cardiac orifice could hardly be passed by a sound. A similar condition is sometimes brought about by direct extension of the carcinoma or by involvement of the vagus branches, or by two independent tumors.

Method of Using Antitoxin.—Few physicians now hesitate about the use of antitoxin in diphtheria, but there is considerable difference of opinion in regard to the dosage and the frequency with which it may be given. The rule seems to be to give a full dose, which varies greatly with the age of the patient, the severity of the disease and the physician's personal opinions, and then repeat the dose in twelve to twenty-four hours. This frequently requires very large doses, and in very severe cases is sometimes inefficient. C. F. Welden (N. Y. Med. Jour., Nov. 14, 1903) has changed this method somewhat by giving a moderate dose, about two thousand units, and repeating it every three hours till results have been obtained. In this way toxic symptoms may be avoided, and the system more quickly brought under the control of this agent.

Treatment of Pulmonary Tuberculosis with Raw Meat.—This is an investigation based both on private and hospital practice. B. S. Knotte (Roussky Vrach, Nov. 1, 1903) reports in detail the case of a neurasthenic thirty years of age, who had suffered ten years ago from syphilis for which he received specific treatment. For the last three years patient showed undoubted symptoms of pulmonary tuberculosis. He was put under treatment for three months, during which time he was fed with fresh meat-juice, expressed from raw meat; later on he was also given between 80 to 100 grm. of meat without the fat. During all this time he was attending to his business as usual. The author states, however, that instead of improving the patient grew gradually worse, so that the treatment had to be discontinued. It was only a second course of treatment extending over a period of five months, which seemed to be of very great benefit to the patient, so that the author could find permanent and stable improvement. In the other cases, some of which were in an advanced stage of the disease, the author was guided in administering the juice by the patient's ability to digest it, for to some it was so repugnant that they could not be persuaded to drink it. The quantity of meat ingested was between 300 to 650 grms. per day. At the same time the usual tuberculous treatment was not set aside. Although no cure was noted there was an undoubted improvement in many of the cases, and the author unhesitatingly advises the treatment in cases where climatotherapy is beyond patient's reach. Proper care should be taken of the functions of the liver and kidneys. The gist of this method of treatment lies in energetic feeding. But the author is also inclined to attribute to raw meat or juice a sort of specific effect on the tuberculous process.

Death from Acute Circumscribed Edema.—Cases of localized edema appearing rapidly in certain parts of the body without any known cause and in a few hours or days as quickly disappearing, were first reported by Quincke in 1882. Only two instances of death have been mentioned as resulting from this cause, and they were due to the fact that the edema involved the upper air passages and caused immediate suffocation. E.

STRÄUSSLER (Prog. Med. Woch., Nov. 12, 1903), reports the case of a soldier, twenty-three years old, who was suddenly awakened in the night with a feeling of suffocation, and although medical assistance was near at hand, he died before a tracheotomy could be done. He previously had been confined to a hospital for a few days on two occasions suffering from edema of the scrotum and penis. A history was obtained that his father and a brother had suddenly died from suffocation without known cause, and heredity seems here to have been an important factor. An autopsy failed to disclose any lesions of the heart, lungs, kidney or liver and the circumscribed swelling of the tissues of the neck and larynx were the only discoverable pathological lesions.

Diagnosis of Diabetes.—Although the diagnosis of this disease depends upon an examination particularly exact in its findings when properly done, yet there are several reasons why mistakes are frequently made. R. T. WILLIAMSON (Med. Chron., Sept., 1903) shows how often the disease is overlooked because the prominent symptoms are not complained of and no urine examination is made. Loss of flesh and increasing weakness may be the only symptoms for months. Pruritus of vulva and eczema of external genitals may be first indications of diabetes. Defects in vision, phthisis, carbuncles or attacks of pains in the legs of an irregular type accompanied by loss of knee-jerks, but no other tabetic symptoms, may lead to the suspicion that diabetes mellitus is the true cause. Coma may even supervene before a true diagnosis is made. On the other hand, small quantities of sugar in the urine may be held responsible for too many of the symptoms of which the patient complains, and it is necessary to be sure that we are not dealing with a simple, temporary glycosuria, or that the reaction is not due to some other reducing agent in the urine. In the examination of urine for sugar in most cases Fehling's solution is the only test required. If no oxide of copper be thrown down on boiling, and if no greenish precipitate appears when the mixture cools, then sugar is absent in a clinical sense. If a precipitate is present and the other symptoms are present, the diagnosis of diabetes is justifiable. If, however, the precipitate is very slight and there are no symptoms present the question arises whether the reaction is due to sugar or some other reducing agent such as lactose, pentose, uric acid in excess, glycuronic acid, alkapton, etc. The phenyl-hydrazin test is the best to apply in these cases, and a simple modification of it may be done as follows: A test-tube of ordinary size is filled for about half an inch with hydrochlorate of phenyl-hydrazin, then acetate of sodium, in powder, is added for another half inch. The test-tube is half filled with urine and boiled for about two minutes. After standing a half hour the sediment at the bottom is examined under a microscope. If glucose is present bright sulphur-yellow needle-shaped crystals will be found. It is so sensitive in its results that crystals will be present when only 0.015 per cent. of sugar is present. Glycuronic acid is practically the only other substance which will give these crystals. If it is desirable to be absolutely sure that these tests are caused by glucose, the fermentation test may be tried and glycuronic acid will give no reaction in this case.

Infectious Diseases among Negroes.—The experience of many years as physician among the tribes along the west coast of Africa are embodied in an article by A. PLEHN (Virchow's Archiv, Vol. 174, suppl.). It is an interesting fact that the uncivilized negro is almost immune toward many infectious diseases which are common and fatal among the whites, but that he has in malaria and dysentery formidable enemies which oftentimes decimate his rank. Tuberculosis, scrofulosis and rachitis are hardly ever seen, syphilis is rare and runs a mild course, tabes and progressive paralysis has never been observed, and only a few cases of malignant tumor and leprosy have been met with. Even contused wounds heal rapidly, and if an infection occurs, it is generally mild and circumscribed. Despite indiscriminate sexual intercourse, gonorrhea is not usually followed by its disagreeable sequelæ, and sterility among women is not encountered often. Diseases which do not occur at all are anthrax, glanders, hydrophobia, diphtheria, and scarlet fever, while measles is common, though mild. Smallpox plays an important rôle in the tropics, but it often appears more like a skin-disease than a constitutional infection. Vaccination does not seem to protect as well as in Europe. The negro race seems to be rather insusceptible toward yellow fever, and plague, exanthematic typhus, cholera, recurrent and Malta fever are only introduced occasionally. Typhoid, on the other hand, is more common and presents the usual course, except that diarrhea is often absent, and cerebral symptoms are especially marked. A large percentage of cases are not real typhoid, but colon infections. The most important disease undoubtedly is dysentery of amebic origin, though it also runs a mild course, and is readily controlled with calomel and bismuth. Pneumonia presents the following peculiarities: It frequently begins centrally, often affects one or both upper lobes, and the local signs may change place. The onset is not acute, but slow, with bronchitis. Serous exudation into the pleura does not complicate the disease, which seems to speak for the tuberculous nature of the former. Mumps is frequent, and mild and acute articular rheumatism frequently attacks the natives, causing considerable suffering, but never involving the serous cavities or the endocardium. Most cases of beriberi run very acutely and are often fatal in twelve to forty-eight hours. The entire symptom-complex points toward a severe infection, involving especially the sympathetic and vagus nerves; despite abundant material it was, however, impossible to determine the nature of the poison and its probable portal of entry. No drug has a favorable influence upon the disease and morphine, which must be given freely on account of the intense pain, seems to hasten the end. The condition of the liver at autopsy is interesting, since it often shows interstitial changes, besides marked degeneration. The opportunities for studying malaria are especially favorable in western Africa, since it forms a veritable scourge for the black race. It is a mistake to believe that one attack protects from others, though it is common to find plasmodia in the blood as harmless parasites, without causing fever. Even young infants are as a rule infected, though not ill. The parasites are not entirely latent in these cases, since an anemia with splenic tumor will gradually develop. The blood examination is of less value for the diagnosis of an obscure disease, since one cannot always tell if the plasmodia are active and latent. A relative immunity is frequently seen, so that subsequent attacks are much milder, and this may account for the low mortality. All three forms of parasites, together with transitional types in all possible combinations, may be detected in the blood in actively infected negroes. Quinine generally acts very promptly. In conclusion, the author states that the remarkable resistance of the negro cannot alone be explained by the absence of alcoholism, tuberculosis and syphilis; it is a racial peculiarity which is gradually lost with civilization.

Infection with the Bacillus Typhi Murium.—Cultures of the *Bacillus typhi murium* are frequently employed to kill mice, and hitherto no infection in man

has been observed, so that the germ was considered harmless until R. TROMMSDORFF (Münch. med. Woch., Dec. 1, 1903) had occasion to observe a small epidemic in a village. The symptom developed two days after infection and merely amounted to a moderate diarrhea of two to seven days' duration, vomiting in a few cases and a mild prostration. In only one instance did the disease prove fatal, owing to a general poor condition of the patient. The bacilli were found in large numbers in the cholera-like stools, and were readily agglutinated by the blood-serum of the convalescents.

Determining Pressure in Right Auricle.—G. GARTNER (Münch. med. Woch., Nov. 24, 1903) has discovered a very simple method of measuring the pressure in the right auricle. If the veins of the arm are observed while the arm is hanging by the side of the body, they will be found filled, but as soon as the arm is raised beyond a certain level, they collapse and become invisible. The distance between this level and the right auricle accurately corresponds to the auricular pressure. In normal individuals the phenomenon is noticed when the arm is raised to the level of the fifth, fourth or third rib; in pathological cases it must be elevated to the jugulum sterni, sometimes even to the level of the eyes or the top of the head. The measurements should always be taken from the upper border of the fifth rib at its sternal insertion; though this does not correspond exactly to the position of the auricle, it is a fixed point concerning which there can be no doubt. The highest figures obtained were 37 centimeters in a case of beginning infiltration of both apices. In pulmonary infarction a marked fall was observed after an injection of camphor, coincident with the disappearance of dyspnea and cyanosis. In general the pressure is above normal in all cases of respiratory or circulatory embarrassment, but the chief value of the method lies in the fact that it may be the first symptom. The patient should be in the sitting posture with the sternum as nearly perpendicular as possible. Excepting well-nourished children, some veins sufficiently prominent can generally be found along the back of the hand or the radial side of the forearm. Cold interferes with the phenomenon and calcareous vessels should be avoided since they do not collapse readily; and good light is essential, the patient's respirations should be free and easy and the arm should be horizontal, with muscles relaxed.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Relationship of Duodenal Ulcer to Acute Eczema.—The relationship of burns to this form of ulceration is well known, also the effect of the modern antiseptic treatment of burns in reducing the frequency of duodenal ulcer is generally recognized. HUGH H. BORLAND (Lancet, Oct. 17, 1903) relates the following history of an eight months old baby, who succumbed to this most unique condition. The child was breast-fed until the seventh month. Very early he began to suffer from eczema of the head, which persisted. He was vaccinated at the fifth month. At the sixth month the face became eczematous. Submaxillary gland swelled and appeared to be suppurating. This subsided, however. At the eighth month there was an exacerbation of the eczema which took on a virulent form, extending to the trunk. After this the temperature rapidly became subnormal and all the other characteristics of profound infection were present. The skin was so affected that it was abraded by the simple wiping away of the exudate. Later the eruption became pustular and discrete. He vomited some blood and from this time the motions were tarry. He had extreme pains in the abdomen; vomiting was marked. These characteristic symptoms of ulcer persisted until the child died of hemorrhage. The pathological report showed no evidence of peritonitis. In the lesser sac was a clot practically filling it. A round ulcer on the posterior wall of the duodenum just beyond the pylorus had perforated, the opening being about the size of a split pea, and directed toward the lesser sac. The stomach was normal, although slightly congested. All other organs were normal. The skin of a child is relatively greater in area than that of an adult in its ratio to the body-weight. Hence cutaneous lesions in infants would be expected to produce correspondingly greater disturbances in the intestines. Whether this be due to impairment of the function of the skin, to nerve irritation, to destruction of red corpuscles or leucocytes or to absorption of toxins from the disintegration of the blood corpuscles is not known, although it is probable that the belief in a septic embolus being deposited in the walls of the stomach and so establishing a zone of lowered resistance is the most probable. As this is the first recorded case of ulceration following eczema nothing can be said as to the relative rates of appearance of the ulcer, which is known to give evidences of its presence in burns as early as from four to six days after the injury. It is probable that if the attention of practitioners had been called to these possible relationships, more literature might have been collected, because many cases have probably passed unrecognized.

Rôle of the Blood Fluids in Phagocytosis.—The experiments performed by A. E. WRIGHT and S. R. DOUGLAS (Proc. of the Royal Soc., October 31, 1903) show that the blood fluids play an important part in phagocytosis. They modify the bacteria in a manner which renders them a ready prey to the phagocytes. This is spoken of as an "opsonic" effect (*opsono—I cater for; I prepare victuals for*), and the authors employ the term "opsonins" to designate the elements in the blood fluids which produce this effect. The question as to whether the blood fluids contain, in addition to opsonins, also an element which directly stimulates the phagocytes, remains for the present unsolved. The opsonic power of the blood fluids disappear gradually on standing, even when the serum is kept in a sealed capsule sheltered from the light. The opsonic power of the serum is diminished when this last has been digested with typhoid bacteria. The opsonic power is diminished while the phagocytic power of the leucocytes is preserved when the blood fluids and corpuscles are separately digested with *Daboia* venom. This probably explains the reduced resistance which supervenes upon viper bites. The study of immunity must therefore include the phagocytic power of the white blood cells, the agglutinating, bacteriolytic and bactericidal powers of the blood-fluids and, lastly, the opsonic effect of the latter. As a concrete example is adduced the following: The condition of immunity to staphylococcus which can be induced in patients unduly susceptible to staphylococcus infections, by the inoculation of properly adjusted doses of a sterilized staphylococcus culture, is associated with an increase of the phagocytic power of the white blood corpuscles, and unaccompanied by any development of a bactericidal power in the blood fluids.

Pathology and Classification of Intussusceptions.—Intussusceptions may be classified into single, double, triple and so on, but inasmuch as the lesion is usually considered to be single, these classes are by no means universally employed. EDRED M. CORNER (Ann. of Surg., Nov., 1903) in a long analysis of this disorder, shows that double intussusceptions are of great frequency. He divides the single form into four varieties, viz., enteric, that is, of small bowel only; ileocolic, when small bowel is prolapsed into the ileocecal valve; ileocecal, when the

valve forms the leading part of the intussusceptum; colic, when only large bowel is implicated. By ileocolic is meant that invagination has begun in the ileum and then passed wholly or in part through the valve. He concludes, (1) that double intussusceptions are more common than single; (2) that ileocolic intussusceptions are the most common of all, colic-ileocecal next; (3) the single ileocecal variety is decidedly uncommon, found usually in chronic cases; (4) the ileocolic is the most common variety of primary intussusception; (5) the inversion begins laterally and most frequently in the last part of the ileum, which becomes engaged in the jaws of the ileocecal valve; (6) the so-called ileocecal form probably arose in the last half inch of the ilium or the caput-coli; (7) that both in man and animals the ileocecal valve is probably never primarily responsible for the trouble. His conclusions regarding intussusceptions associated with Meckel's diverticulum are that the two following groups exist: (*a*) when the process opens at the umbilicus as well as into the small intestine; (*b*) when it is only in connection with the intestine. This is the larger group.

Physiological Factors Which Govern the Temperature Range in Tuberculosis.—In studying the normal temperature curve of the monkey, J. J. GALBRAITH (Proc. Physiol. Soc., Jour. of Phsyiol., Nov. 2, 1903) finds that it closely corresponds in form with that found in simple tuberculosis in the human subject, there being an imperfect control manifesting itself in the form of an increased diurnal variation and a greater liability to disturbance of the form of the wave by variations in the external conditions. The author studied the behavior of the wave in the tuberculous monkey, with the view of ascertaining whether the temperature swing in human tuberculosis is not capable of a physiological explanation. The temperature curve in the tuberculous monkey shows the following features: (1) An increased amplitude of the wave as compared with the average; (2) the mean daily temperature remains practically unaltered, the exaggeration taking place in the downward as well as in the upward direction; (3) the swing follows exactly, as in the normal animal, the curve of metabolic activity; (4) reversal, or modification of the direction consequent on reversal, of the metabolic phases, the tuberculous monkey reacting more rapidly than any of the others to the various experimental changes; (5) exaggeration of the accidental waves caused by excitement exercise. The conclusions deduced from the study of the curve (which are strongly supported by clinical evidence and study of the tuberculous swing in man) are: (*a*) That the character of the wave in the tuberculous monkey shows a further exaggeration of the deficient control which characterizes the normal monkey as compared with man; (*b*) that the swinging temperature of simple tuberculosis is metabolic in origin, as opposed to toxic, and can be explained by physiological laws; (*c*) that a constant rise of the mean temperature takes place, associated with secondary pathological changes.

Influence of Fever on Adrenalin Glycosuria.—Since the sugar sometimes disappears in diabetes when some febrile disease supervenes, the effects of artificial fever, such as is caused by injury to the corpus striatum, upon glycosuria, presents an interesting problem, especially since lesions of the "sugar center" in the fourth ventricle often causes a fall of temperature. E. ARONSOHN (Virchow's Archiv, Vol. 174, No. 2) first studied the effects of adrenalin alone. Subcutaneous injections of 0.01 gram to 1.5 kilogram body-weight, regularly, cause an excretion of sugar varying from 0.5 to 5.5 per cent. Intravenous injections are still more effective, but sufficient absorption from the mucous membranes does not take place. The sugar can be detected very soon; thirty minutes after injection 3.6 per cent. could be obtained and the amount was generally highest in four to six hours. A second injection does not materially increase the amount. Acetone was found in only one case, albumin in none. The effects of adrenalin never last longer than twenty-four hours, since the fall is equally as rapid as the rise. The condition of the temperature is variable; there is often a slight fever with commercial products but a subnormal temperature if fresh extract is used. The same injections were repeated with animals whose heat-centers had been injured and in no case was sugar detected in the urine. This interesting observation is best explained by the increased metabolism which goes on in the muscles during fever; this stimulus is probably sufficient to burn up the sugar which otherwise would be lost. If glycosuria is complicated by severe organic disease this peculiar action may be absent.

PHYSIOLOGY.

Resistance of Serum Proteids to Tryptic Digestion.—The interesting fact that a considerable portion of the proteids contained in blood serum preserves for a long time its coagulation in the presence of trypsin, is revealed by the researches of C. OPPENHEIMER and H. AUN (Beiträge z. Chem., Physiol. und Pathol., Sept., 1903). A preliminary coagulation destroys this property, which may also be considerably weakened by the addition of a small quantity of pepsin-hydrochloric acid. This resistance cannot be adequately explained by the hypothesis of the presence of an antitrypsin, but rather upon the basis of the existence of a specific configuration of the serum molecules, that furnish insufficient points of attack for the molecules of the ferment.

Laking of Red Blood Cells.—The interesting question presented itself to H. KOEPPE (Pflüger's Archiv, Sept. 11, 1903), namely, whether the laking of blood, the melting away of the red blood cells, the issue of hemoglobin from the latter, hemocytolysis, hemolysis—whether all these are the various expressions for one and the same process. Do all substances that destroy red blood cells, do hemolysins, globulicides, hematic toxins, act in the same or different ways? To answer this question the author performed a long series of experiments with the following results: Red blood cells are laked or lose their hemoglobin under the influence of (1) water, (2) heat, (3) hydrogen ions, (4) hydroxyl ions, and (5) a series of substances that dissolve fats. The laking brought about by water is attributed to the extraordinary difference between the osmotic pressures within and without the cells, which brings about a disturbance of the semipermeable wall. The laking produced by ether, chloroform, alcohol, acetone, etc., which are all capable of dissolving fats, suggests the hypothesis that the semipermeable wall of the red blood cell consists of or contains a fatty compound. The action of heat in causing hemolysis would be explained on this basis, for heat would dissolve the fatty wall of the cells. The relative constancy of the temperature at which laking takes place would go hand in hand with the constancy of the melting-point of fats. To explain the laking action of hydrogen and hydroxyl ions, the author supposes that the former hasten the splitting of an ester in thin watery solution into the corresponding alcohol and acid, a process known as catalysis; while the hydroxyl ions bring about saponification of the ester. All the above agencies destroy the capacity of the cellular wall to be semipermeable, and as a result the hemoglobin is dissolved out.

Elimination of Apomorphine by the Stomach.—The following conclusions were drawn from a series of investigations pursued by A. VALENTI (Arch. Ital. de

Biologie, Sept. 10, 1903): Apomorphine introduced into the organism by hypodermatic injection is not found in the material vomited immediately after the injection, nor in the liquid obtained by lavage of the stomach, performed from one-half to six hours after the administration of the drug. This indicates that the emetic action of apomorphine resulting from stimulation of the spinal centers, is not re-enforced by a local action upon the wall and ganglia of the stomach. Since the apomorphine after absorption is not found as such in the gastro-intestinal canal, nor in the urine, it must undergo certain structural modifications within the organism. The production of the special antiperistaltic movements, observed by Schütz in the stomachs removed from animals to which apomorphine had been administered hypodermatically, can be attributed only to the final decomposition products of the base, which stimulate directly the muscular and automatic nervous elements of the stomach.

Pathogenesis of Epilepsy.—In a case where epilepsy had proved fatal, D. CREITE (Münch. med. Woch., Oct. 13, 1903) found the cortex of the brain the seat of a number of cavernous angiomata, the largest of which were surrounded by calcified connective tissue. They were probably congenital since the epileptic seizures began in earliest youth. Their relation to epilepsy can hardly be explained by variations in intracerebral blood-pressure since experimental venous stasis, even in epileptics, never brings about an attack and since compression of the carotids in animals, is never followed by convulsions. It is more probable that they irritate the cortex by their constant growth. Angiomata of the brain are rather rare, but have been found in several previously reported cases of epilepsy.

Copper in Syphilis.—There is a cachexia or condition of bad health which is not infrequently shown by old syphilities, in which there are no focal lesions, and which is manifested by weakness. Arteritis, with its manifold symptomatology and the various spinal degenerations which frequently result from late syphilis, are perhaps the most unsatisfactory manifestations of the disease to treat. A. F. PRICE (Med. Rec., Oct. 10, 1903), who is medical director in the navy, has found that copper exerts a much more beneficial influence over these conditions than either mercury or the iodides. He points out the fact that those cases manifest a peculiar susceptibility to copper, and he knows of no other disease in which this sensitiveness to copper exists. He has tablets of copper arsenite, gr. $^1/_{3200}$, which sometimes cause symptoms of prostration and collapse, even when given in dosage of only one per day. Great care must be taken at first till a tolerance is produced, and the drug should be frequently stopped for a few days. It is, therefore, a valuable diagnostic aid. After a dose of $^1/_{800}$ gr. is reached the copper sulphate is usually given made up in pill form, with gentian. In acute syphilis the sulphate may be given in doses of gr. $^1/_{20}$ from the beginning, combined with mercury. He firmly believes that copper has a very helpful action, and may greatly improve early cases of tabes.

Is Pharmacologic Action Determined by Chemical Structure or by Physical Characters? Many interesting examples are brought forth by A. R. CUSHNY (Jour. Amer. Med. Ass'n, Nov. 21, 1903), which show that the actions of various drugs are to be attributed more to the physical characters of the entire molecule than to any chemical reactions or combinations of the constituent groups of the molecule. It has been held, on a comparison of the effects of methane (CH_4), which is practically inert, and of methyl alcohol (CH_3OH), which is a depressant to the central nervous system, that the activity of the latter is to be attributed to the presence of the OH, which may combine with the protoplasm in the same way as with an acid. But, on the other hand, the alcohol may possess some physical property, such as a lower volatility, which endows it with some power to effect certain changes in the cells without any chemical reaction taking place. In support of the latter hypothesis the experiments of Kionka are cited. This investigator found that whilst methane (CH_4) is devoid of narcotic action, CH_3Cl has some effect. The presence of Cl appears to endow the molecule with activity; $CHCl_3$ is four times more powerful than CH_2Cl; but CCl_4, instead of being still more powerful, is only half as depressant as $CHCl_3$. This result suggests that the depressant qualities of this series are not determined by their molecular structure, but by some physical character which is present in a large proportion of the chemical group, but not in all of them. Hans Meyer ascribes the depressant action of this group to their tendency to pass from watery solutions into fats and oils. Other examples that lend weight to the physical theory of pharmacolical action are the following: It has been found by Sternberg in comparing bitter and sweet tasting substances that the hydrocarbons are practically indifferent, but taste is conferred on them by the introduction of two or more OH groups, when the sense of sweetness follows. Fisher's studies, on the optical isomers, have shown that the yeast cells, yeast ferments and emulsin can differentiate between the dextrorotatory and levorotatory isomeric sugars, while no ordinary chemical reagents select the one in preference to the other. The author has proved that levo-hyoscyamine acts 12 times as strongly in the salivary glands as dextro-hyoscyamine, although these two bodies cannot be differentiated by ordinary chemical methods. The activity of the hemolysin, saponin, appears to be determined by the solubility coefficient to its power of chemical combination. Certain drugs act only in the presence of other bodies, which are practically inert, but which tend to facilitate the solution of the active principles. For example, the active principles of the vegetable cathartics are often less satisfactory when given in a pure form than when mixed with the inert bodies with which they are found in nature.

GENITO-URINARY AND SKIN DISEASES.

X-ray in Circumscribed Peri-urethral Gonorrhea.—The utility of the X-ray as a diagnostic agent in urology is well recognized. Therapeutically, however, in the diseases common to this special branch of medicine, they have made but limited progress. R. KAUFMANN (Centralbl. f. d. Krankh. der Harn und Sex. Organe, Oct. 24, 1903) describes the technic made at Frankfort in three cases of peri-urethral infiltration. The intensity of the current was three to four ampères. The tubes were No. 3 and moderately hard. The exposure period was ten to fifteen minutes. In the first exposure a piece of sheet lead was used to shut off the parts intended to be protected. Later, however, a lead cylinder was used. The distance from the tube varied from 10 to 20 c.c. Three cases are detailed in full. They were each of cavernous infiltration which had resisted ordinary forms of treatment. The author does not claim that the rays are a panacea in the treatment of this condition or even that they destroy the bacterial life. It is apparent that they are a very decided factor for good, however they may work, whether by direct destruction of the bacteria or by causing the absorption of the inflammatory tissues. Three cases are not sufficient upon which to base any conclusions, but it would appear that the disorder is sufficiently superficial to lend itself favorably to this form of therapy.

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PHYSICIANS AS HEADS OF MUNICIPAL DEPARTMENTS.

Two years ago, when the recently defeated fusion candidates were about to take office in New York City, the MEDICAL NEWS suggested the advisability of the appointment of a physician as the head of the Health Department. There had been previously a prejudice against the occupation of this position by a regular practitioner of medicine. This prejudice had actually been incorporated into the old charter of New York, so that a physician by a curious anomaly and inexplicable contradiction could not be given the charge of the health of the city of New York. Our suggestion of two years ago did not bear fruit, though it is our pleasure to say that the gentleman who was appointed to fill the position of Health Commissioner, a doctor of another faculty, wisely fulfilled the duties of the difficult office in a manner to deserve all praise. The demonstration of his success in office is to be seen in the lower death rate, which makes the city of New York at the present time almost as healthy as many of the so-called health resorts of the world.

While the present Mayor had the new appointments under consideration, we called attention to the fact that one of the best managed departments of the city government, during the fusion administration, had been that of the Street-Cleaning Department, at the head of which was a physician. Dr. Woodbury's success in this trying post has been the best possible proof that a physician could have the executive and managerial ability to control and coordinate the large number of assistants required for so important a department. This was in contradiction of the old cry that had formed the basis of the prejudice against physicians as heads of departments that they were likely to be lacking in administrative capacity. The condition of our streets for two years and the number of improvements introduced into the Street-Cleaning Department, have undoubtedly marked the administration of the first physician appointment as one of the most noteworthy in the history of the city.

While the lowered death rate must be mainly attributed to the well-directed activity of the Board of Health, there can be no doubt that the fact that a physician was in charge of the Street-Cleaning Department was no insignificant factor in the production of this very favorable result. These two city departments can be coordinated in many ways with decided advantage to the city's health. Cleanliness in the modern sense is not merely the removal of malodorous material nor the carting off of filth and refuse in order that it may not offend the eye or the nose. True cleanliness has become a study in bacteriology and any one who hopes to succeed in making clean streets that will at the same time be healthful must realize how much bacteria mean in the production of ill health and what important precautions are needed that micro-organisms may not be allowed to infect food products, nor, as far as possible, be blown about, thus finding an entrance into the houses in crowded districts. It was this particularly that the physician Commissioner, who has to our minds so fortunately been allowed to hold over, accomplished to a greater degree than others, because of his special knowledge in these subjects.

We have no doubt that the new Commissioner of the Health Department, Dr. Thomas Darlington, will prove as excellent an example of the administrative capacity of physicians as has the brother member of the profession in the Street-Cleaning Department. Certainly it would seem that the new administration is giving many evidences of its earnest effort and sincere desire to secure the proper management of important departments of the city government. These two

appointments are such as must commend themselves to every one who has any knowledge of the conditions and who knows the men who are thus honored by the new Mayor.

These men will need the active cooperation of physicians all over the city to accomplish the sanitary results that may rightfully be expected of them. This should undoubtedly be given them to the best of professional ability. The percentage of deaths for the past year, recently reported in New York, was only a little over eighteen for each thousand of the population. That for the previous year, 1902, which was the lowest recorded up to that time, was much nearer nineteen per thousand. There is no doubt that these figures can be reduced still lower, and thus many thousands of lives be saved each year. A reduction of even one per thousand in the death rate means over three thousand less deaths than fore. The value of so many lives can scarcely be estimated, though it serves to give some idea of the economic value of the application of the great principles of sanitation and hygiene to the problems of administration in great city departments. There is every reason for hope that the prospect, which seems so bright, will be amply fulfilled.

PRESENT STATUS OF APPENDICITIS.

The discussion on appendicitis, at one of the meetings of the Harvard Medical Society of New York City, last year, did not bring out many new points in the diagnosis and treatment of this important affection, but it did show the present status of surgical and medical thought with regard to the most interesting of modern diseases. There is now a general agreement that it is practically impossible to diagnose appendicitis itself, that is, as a simple inflammation of the appendix without any involvement of surrounding tissues. What is really diagnosed is always the peritonitis which begins to develop as soon as all the coats of the appendix have become affected by the inflammatory disturbance within that little organ. The recognition of this state of affairs may seem to be of no practical importance and to represent only a change of nomenclature. As a matter of fact, however, it will make appendicitis much more significant and cause the practitioners of medicine generally to be more careful in any attempt to treat severe phases of the malady by medical means alone, if they appreciate that the inflammation at the time, even when the first sign occurs, is already outside the intestines in the peritoneal cavity, and consequently beyond all hope of direct influence from medication within the intestinal canal.

It is probable that there are certain mild attacks of colic, heretofore considered of very little importance, frequently occurring in children and looked upon as trivial results of indiscretions in diet, which are really little attacks of true appendicitis, that is to say, of a spasm of the mucous canal and the muscular coat of the appendix as a consequence of beginning inflammation in the mucous lining. One physician described a series of attacks that had occurred in one of his own children, in which there was simple colic with no rise of pulse and temperature but with a tendency for the attacks eventually to recur at shorter and shorter intervals. Operation in this case disclosed the presence of a grape-seed within the appendix, and beginning inflammation of the mucous lining.

It has been recognized for a good while now that the conditions found in the appendix at operations in adult life are often significant of very old pathological changes. Strictures of the appendix after all are structurally not unlike strictures of the urethra. It is well known that urethral strictures take many years—at least five to twenty—to form. It would not be too much to expect that corresponding changes in the mucous membrane and submucous tissue of the appendix would take at least as long to form. As a matter of fact, the blood supply to the urethra being quite abundant while that to the appendix is limited, it might reasonably be expected that the changes in the urethra would be considerably more rapid than those in the appendix, yet appendiceal strictures are often quite tight and distinctly indurated.

Apparently all, even the mildest form of colic localized in the lower part of the abdomen is much more likely to be appendicitis than anything else. The distinction between appendicitis and oophoritis or salpingitis, is often impossible, but the appendix must always be the first thought. Occasionally a diverticulum of the intestine may cause symptoms so like those of appendicitis as to be impossible of differentiation, but as this condition also requires operation under the circumstances, the error of diagnosis amounts practically to nothing.

One important fact, brought out in the discussion before the Harvard Medical Society, is that

many surgeons now consider it advisable to remove even the healthy appendix, if the abdomen is opened for some other reason. When this practice was first begun, it was looked upon as a bit of meddlesome surgery. Now even the most conservative surgeons are coming around to the idea, that it is sure not to do harm and absolutely precludes all possibility of the appendix ever being the seat of a serious pathological condition that would require the abdomen to be opened once more. Physicians themselves, when operated upon intra-abdominally, find it rather easy to grant the permission to perform this additional operative procedure, and this after all is the best possible index of the true conservatism of this practice. Future generations will probably know whether the habitual performance of appendectomy in all laparotomies will, by a process of organic modification with transmission of acquired characters, eventually lead to the development of the fortunately evoluted being—an appendixless man.

There is practically universal agreement now that while the surgeon and the physician and the patient's friends may regret delay in operation for appendicitis, it rarely happens that there is regret for an early operation. The disease is now known to be so treacherous that no one can foretell its course in any given case. Gangrenous appendicitis may, after a stormy beginning, give a remission during which the patient is apparently getting entirely well, when, as a matter of fact, death is becoming more and more inevitable. The insidious nature of gangrenous conditions in intestinal tissues was well illustrated in President McKinley's case. Some of the worst forms of appendicitis seem to run a course not unlike that of the late lamented President's, running a latent course until it is too late to save life, or, at most, do more than delay the fatal termination, since septic thrombosis of the mesenteric veins will surely lead to subsequent fatal complications. Fortunately, now it is not hard to secure permission for early operation, and in this lies the best and easiest method of cutting the Gordian knot of difficulties that so often surround appendicitis cases.

TWENTIETH CENTURY PROFESSORS.

THE musical query that delighted the audiences of the extravaganza of "1492"—"After the Fair is Over, What Will Chicago Do?" seems finally to have been answered by the recrudescence and production of a crop of "Specialists" and "Professors," that appears to be blessed with more than pernicious activity. This from an ethical standpoint, is bad enough, though when one reformer advocates the cult of a single meal a day, with a cloistered life behind closed doors, while another extols the fad of outdoor exercise, with frequent but reduced amounts of food, it does little harm, as the extremes, in these cases, seldom meet across the barrier of the exigencies of an active business career.

But when a man, like Dr. John Dill Robertson, who might popularly be supposed, by the laity, to be an authority in a learned profession, announces to the world, from the Auditorium at Chicago, that cleanliness is sitting at the right hand of disease rather than next to Godliness, and that it is not injurious (despite the traditional gilded youths of the Roman captives—the *jeunesse dorée* of the triumphant processions of Nero) to choke the pores of the skin with dirt and sudorific accumulations, it is time to cry a halt.

The gospel, according to this latter-day prophet, is explicit, if it is nothing else. "When people leave off bathing, there will be little or nothing for the doctors to do. Pneumonia, colds, and a hundred other ills, result from the foolish habit of washing the body. To bathe is to be dirty, for you thereby make a sewer of the skin. Blood attracted by the skin, gives up products that should be left to seek a natural outlet, and soils the skin." Later on, he goes farther afield and after saying that the theory that the closing of the pores of the skin would result in death is false, denounces in no measured terms, the habit of taking what he terms "dry baths." For he says "the rubbing of a rough towel over the skin removes the natural scales from the 'false skin' and conduces to the growth of bacteria on the skin."

All this will doubtless seem attractive to certain classes, in any community. As a nation we are to a degree still young to the importance of constant ablutions; a sense of which has been carried to such an extent by our English cousins —and we are now only beginning to emerge from the Saturday night tub epoch, and becoming habituated to the daily bath habit. Weary Willie and Plodding Pete have not yet included folding bath tubs in their traveling impedimenta, and will welcome converts to their fixed habits, while the schoolboy will be at last induced to believe that he has found something seductive in modern science.

The worst of it, too, is the singularly opportune time that the "professor" of these heresies has

taken to profess. Many a scheme that would have failed on account of its folly has been aided and has acquired headway from some fortuitous outside circumstance, and the cold weather that has been so prevalent of late, only adds to the ease with which a bath is dispensed with. Had Dr. Robertson launched his crusade in the hot summer months, when cold water was a necessity and not a luxury, the raucous echoes of his diatribe would hardly have reverberated beyond the walls of the Auditorium.

As to the facts from which he draws his deductions, and the statistics from which he reaches his conclusions, they all depend on a *single* Eskimo, who was deported from Greenland, and after being washed, died of pneumonia at Boston. One case, however, is hardly enough to prove the habits of the civilized world at fault, even to the satisfaction of a Chicago jury and there is no more reason to believe that one Eskimo will constitute a winter, any more than that one swallow will make a summer. Anyone, moreover, who has seen a Greenlander in his native habitat, can easily understand that the removal of his grease-stained, oil-impregnated, blubber-saturated epidermis would leave him in a condition to acquire any form of sudden death that might be lurking in his immediate neighborhood. Even here, however, we are inclined to attribute his death more to a change in his raiment than to the unaccustomed effects of soap and water. Several years ago, a band of Sioux chiefs, that had come on a mission to Washington, were allowed, in exchange for some lands, to choose whatever was nearest to their aboriginal desires. They promptly selected a sectional wooden house, a cylindrical stove, broad-cloth clothes, silk hats and hobnailed shoes. On their return, the house was built, the fire was started, and for several days the air was redolent of burnt leather and singed woolen, in combination with goat-like and other Indian smells. Finally hunger became imperative, and they were forced out of doors in search of game. The clothes, however, with the hats and shoes, were left by the fire, and the braves took to the trail in the scandalous costume of the Greek slave—modesty only being assuaged by the habitual breech-clout and the customary feather. That they all died from pneumonia is true, but there was no record of any concomitant cause of death from bathing and there is no more cause to attribute it as one in the case of the Icelander.

As Balzac remarked, there is nothing in the world that resembles a pussy cat so much as another pussy cat, so there is nothing in the world of animate creation that is as dirty as a dirty Indian, unless it is another filthy savage, or a *clean* Eskimo. Nevertheless Indians do use baths in sickness, but as they resume the coverings to which they are accustomed, the deaths can usually be accredited to the disease for which they took the baths rather than to the baths themselves. An Eskimo's clothes are not only fearfully and wonderfully made, but are alive with interest and—other things. They are fashioned from incompletely cured skins, are very heavy, and like the mink coat of Cetawayo, are "possessed of a very fine odor when wet." Deprive a native of these, and then turn him loose to the east wind of Boston, and the result will be fairly certain, no matter whether "he is to bathe in fiery floods, or to reside in thrilling regions of thick ribbed ice."

With regard to the "Professor," take him all in all—his published reports and his utterances—we presume that he is a medical man, but we most sincerely trust that we shall not see his like again. In the first place we do not believe that he practices what he preaches, but rather that his sole desire is to bathe in the turbid waves of the notoriety that his statements have evoked, and that he seeks merely to apply the golden ointment, derived from his advertising, to the itching palms of his medicinally dirty, and ethically unwashed hands.

The birth rate of Chicago is large, and more than one fool is born in every hour. Wisdom, too, is not confined to babes and sucklings, and this enterprising "specialist-surgeon" doubtless sees a large and extending clientele among the credulous and ignorant masses of the community. As James Russell Lowell might have said

John D—
Robertson, he
Said, they didn't know everything down in Judee.

ECHOES AND NEWS.

NEW YORK.

Fiftieth Anniversary of the New York Infirmary for Women and Children.—A meeting to celebrate the fiftieth anniversary of the New York Infirmary for Women and Children will be held at the Waldorf on Saturday, January 16, at a quarter past eight o'clock. Addresses will be given by Dr. William H. Welch, of Johns Hopkins University, Miss M. Cary Thomas, President of Bryn Mawr College, Dr. Emily Blackwell and Dr. Annie S. Daniels.

Dr. Macy to Be Transferred.—It has just become

known that the State Commission in Lunacy has voted to transfer Dr. William A. Macy, superintendent of the Willard State Hospital, to the Kings Park branch of the Long Island State Hospital, Dr. R. M. Elliott of the Flatbush branch of the Long Island State Hospital to Dr. Macy's place at Willard hospital, and Dr. Oliver M. Dewing, now superintendent at the Kings Park branch, to Flatbush.

Suspension of Tuberculous Policemen.—At a recent meeting of the New York Health Department, which was attended by President Lederle and Commissioner Doty, a resolution was passed to the effect that no member of the Police or Fire Department shall be permitted to remain on duty when found to be suffering from tuberculosis in its infectious stage. That action was taken on the report of Dr. E. T. E. Marsh, chief surgeon of the Police Department, that seventeen members of the department were suffering from the disease in a stage dangerous to their associates. It was explained by Dr. Lederle that, while this resolution might seem to work a hardship on the afflicted members of the forces, it is, in reality, in the interest of both the sufferers and their comrades. In this day, he said, the one chance of recovery which is left to the patient is given to him, while others are protected from possible infection.

The Mosquito Extermination Conference.—What is described as "The First General Convention to Consider the Questions Involved in Mosquito Extermination" was held in the rooms of the Board of Trade and Transportation, New York City, on the afternoon of December 16. A temporary organization was effected by electing Mr. Robert W. De Forest, Tenement House Commissioner of New York, as President; Mr. Henry Clay Weeks, of Bayside, New York City, as Secretary, and Wm. J. Matheson, described as "the father of the movement on the North Shore, L. I.," as Treasurer. After an opening address by Mr. Weeks, a paper sent in by Prof. John B. Smith, State Entomologist of New Jersey, who is located at Rutger's College, New Brunswick, was read. The paper was on "How a State Appropriation May Be Used," and described the work done during the past season under the direction of Professor Smith, and by the aid of the first State appropriation for mosquito work ever made in this country. During the past summer seven men were kept in the field, distributed well over the State. A total of 33 species of mosquitoes were collected, and 31 of these were bred. One or two more species may yet be found, but it is thought that the mosquito fauna of the State has been pretty fully covered. A small sum of money was spent in experimental ditching for drainage. Professor Smith considered it legitimate for a State to make mosquito surveys and to give general advice, leaving to local communities the work of extermination. Money should first of all be spent in study, so as to avoid the loss of public confidence which would follow mistaken executive measures. Mr. Walter C. Kerr, President of Westinghouse, Church, Kerr & Co., told "What a Rural Community Can Do." The community was on Staten Island, and included an area of some two square miles, embracing both marsh land and upland. In 1898 subscriptions were secured and 25 ponds were covered with petroleum oil. Later the ponds were drained. The oiling was temporarily, but the drainage was permanently effective. The greatest difficulty met was such marsh lands as could not be drained. Plans to exclude sea water from these by tide gates were under consideration when annexation to New York City checked the proposed municipal undertaking. Mr. Wm. N. Berkeley, M.D., of New York City, read a paper on "The Exactness of Proofs of Transmission of Malaria." Dr. E. Porter Felt, State Entomologist, Albany, N. Y., read a paper on "What New York State Ought to Do." He deemed it essential that practical work, particularly where undertaken on a large scale and when requiring many years' time, should be based on scientific principles. The needs in the vicinity of New York City are the greatest, for within a radius of 25 there are some 200 square miles of marsh land, about equally divided between New York and New Jersey. A biological survey of swamp and marsh areas, particularly near the large cities, is needed. The example of New Jersey might be followed and such work entered upon; perhaps in cooperation, so far as possible, with New Jersey. The problem could perhaps be studied sufficiently if there were available for four or five years an annual appropriation of $3,000 to $5,000. Mr. Weeks said mosquito extermination is essentially an engineering problem. Other features of the work are highly important, but the engineer may best determine and carry out plans to get rid of the breeding places, often involving the redemption of thousands of acres of marsh or saturated acres of vast value. Heretofore engineering has been for and not against the mosquito. Breeding places have almost universally been caused by engineering works. This applies to highway, railroad and landscape engineers. The result has often been the depopulation of valuable sections by malaria and its bearers, the *Anopheles*. The better term is "economic engineering," for the work covers a wide range besides simple extermination—the utilization of large areas for agriculture and even for habitation, and the improvement in living conditions of a vast population. During the conference a resolution was adopted providing for a committee of ten, to be named by the chair, to consider and report on permanent organization, the committee to have power to promote legislation, to arrange for the publication of the proceedings of the conference, and to call another conference whenever it should see fit.

A Highly Creditable Showing for New York.—The death rate for New York, says the *Sun*, for the last year, as calculated by the Health Department, is the lowest in the history of the records of mortality of this city. Up to the close of last week it was estimated at 18.15 in the 1,000 annually, as against 18.75 in 1902, and when the returns for the full year are in it is likely to be even less. Since 1890 there has been so great and steady a diminution in the percentage of mortality that it indicates a most creditable and most hopeful improvement in the health regulation, and also, and very significantly, in the cleansing of the streets. The death rate of Manhattan and The Bronx was as high as 26.31 in 1891. In 1898, taking in the whole city as now constituted, it had fallen to 20.26, in 1901 to 20, in 1902 to 18.74 and 1903 it has gone down to 18.15, according to the present calculation. New York, therefore, now takes its place among the healthiest cities of the world, yet in none other of them do the conditions unfavorable to health present a problem so difficult of treatment. Nowhere else is the crowding of population so great as in the densely populated districts of New York. In London, for example, only seven of the twenty-one subdivisions have more than 123 persons to the acre, while the thirty-four Assembly districts of Manhattan average

more than 131 persons. The densest London district, with 623 acres, contains only 200.6 persons to the acre. In New York the Eighth Assembly district contained in 1900 as many as 735.9 to the acre, and on 2,626 acres of the city there were more than 200 persons to the acre. About eight hundred thousand persons in New York are housed more densely than the 130,989 inhabitants of the most crowded London district. Moreover, the densest London district increased in population none at all or only slightly between 1891 and 1901, while the most congested part of New York, the lower East Side, increased its population between 1895 and 1900 at the rate of 10.6 per cent., and the most crowded district, the Eighth, by 6.7 per cent. This increase, too, has been going on steadily during the last three years. The densest London district has 11.5 persons to a dwelling, but in only two of the Assembly districts of Manhattan, the Twenty-fifth and the Twenty-seventh, is the average lower. Even in Brooklyn as a whole the average number of persons to a dwelling is nearly as large as in the most crowded dwellings of London. These facts suggest the vastly greater difficulty of the health problem in New York, and added to them is the volume of immigration steadily pouring into the most crowded districts here, while in London that stream is relatively insignificant. Here is a comparison of the present death rate of New York with that of the chief European cities in 1902: London, 17.7; Liverpool, 22.5; Paris, 18.4; Berlin, 18; Vienna, 19.4; St. Petersburg, 23; Rome, 20; New York, 18.15. Considering the peculiar social conditions in New York, this is a showing most creditable to our Health and Street-Cleaning Departments, and the more so because not many years since New York led the list with its high death rate.

PHILADELPHIA.

Result of Medical Examination.—At the recent winter meeting of the State Board of Medical Examiners but 57 out of 103 applicants were successful, the failures reaching 42.2 per cent. Four men were expelled for cheating and one withdrew. Members of the board stated that the large percentage of failures was due to the severe examination, which was made more difficult than ever before.

City Theaters to Be Inspected.—Because of the object lesson furnished by the recent Chicago disaster, Mayor Weaver has determined upon a thorough special inspection of all the places of public amusement in Philadelphia. For this purpose he has appointed a committee of seven persons, including the fire marshal, the chiefs of the Bureaus of Fire, Building Inspection and Electricity, two prominent builders, and a civil engineer. This committee will begin their work at once to ascertain in what respects the public safety demands immediate improvement upon existing conditions.

Hospital at Butler to Be Discontinued.—The "Philadelphia" hospital at Butler, Pa., is to be closed on January 15. This has been decided by the Citizen's Permanent Relief Committee on the recommendation of Dr. M. S. French who has been in charge of the work there. It is believed that the typhoid epidemic has been conquered and that the hospital will not be needed after the time mentioned. Dr. French spoke most highly of the work of the 25 nurses sent from this city at the beginning of the epidemic. A committee was appointed to prepare a testimonial to be given to the physicians and nurses on their return.

Coroner's Statistics.—The work of the coroner for 1903 exceeded that of any other year in the history of the office. The number of inquests was 3,357—553 more than last year. There were 58 homicides, 202 suicides, 94 deaths by drowning and 932 casualties. Among the latter were 254 on steam and electric railways.

Affiliated Scientific Societies.—The meeting in this city December 29 and 30 of the affiliated American Scientific Societies was a successful one in every way, social as well as from a strictly scientific standpoint. Smokers, luncheons and receptions were tendered the visiting members whenever the scientific program permitted. The meetings were held in the buildings of the University of Pennsylvania except the second day's meeting of the American Physiological Society, which was held in the physiological laboratory of Jefferson Medical College. The first annual meeting of the American Society of Vertebrate Paleontologists was held in Biological hall, it being decided to affiliate this with the other societies.

A Case of Rhinophyma.—An interesting case of this rather rare condition, in which operation was followed by remarkably good results, was reported at the Philadelphia Academy of Surgery, January 4, by Dr. W. W. Keen. The patient was a man of sixty-five years, a tailor by occupation. There was no history of injury. Fifteen years ago he had what was probably an attack of acne rosacea in which the nose and the adjacent borders of the cheeks were most prominently affected. This was followed by a nodular growth of the nose which involved all of that organ except the upper fourth. The growth gave rise to no pain. Breathing was not interfered with, but the projecting mass caused much difficulty in eating. Operation consisted in an elliptical incision with removal of the enclosed part followed by shaving of the growth on each side. Contrary to expectation there was but very little hemorrhage. The cosmetic result is very good, an interesting point being that over the area where the growth was simply shaved off there has been reproduced normal appearing skin instead of scar tissue. Histological study of the removed tissue showed it to be a soft fibroma of the skin with conspicuous distension and possibly hyperplasia of the sebaceous glands.

Pathological Society of Philadelphia.—The Annual Exhibition Meeting of the Philadelphia Pathological Society will be held on Thursday evening, January 14, 1904, at 8 P.M. at the Mutter Museum of the College of Physicians. This exhibition includes extensive gross and microscopic exhibits embracing every department of human and animal pathology. Members of the medical profession are invited to attend.

CHICAGO.

Detention Hospital.—The total number of patients admitted to this hospital during the year was 1,491 and 1,465 of these were taken to various institutions. They were distributed as follows: To Dunning, 809; Elgin, 142; Kankakee, 172; Watertown, 3; Bartonville, 1. Three hundred and nineteen patients were discharged, 19 died, and 1 escaped. Number of patients remaining at the Detention Hospital, 26. Total number of patients received at both the County and Detention Hospitals was 23,718.

Hospital Building.—The total cost of the new buildings and alterations in old buildings was $109,932.09. Besides the hospital for contagious dis-

eases, at the County Hospital are the five cottages for tuberculosis patients and three new cottages for insane patients at Dunning. A Children's Hospital, to be built at the County Hospital and to cost about $75,000, is planned for the coming year.

County Hospital.—Many changes and improvements have been made and are under way. A new heating plant has been erected, an X-ray department installed, and a new building for the isolation of contagious diseases is now in the course of construction. The following work was accomplished at the County Hospital during the year 1903: Number of patients treated, 22,227; discharged, 19,430; died, 1,996, and remaining in the hospital, 801. The sum of money expended for supplies, improvements and repairs, $184,520.21. Expended for salaries, $128,400.63, making the total cost of maintenance, $312,920.84, with a daily cost of maintenance of $857.31, or about $1 a patient. Training school for nurses started and new rules have been adopted for the conducting of the institutions. New cottages for the insane and for consumptives are being constructed. Superintendent Podstata reports an average daily number of patients at the insane department of 1,750; poorhouse, 950; tuberculosis ward, 95. The annual appropriation of last year for supplies was $215,000, and was practically used up; for salaries, $141,000; $6,800 of this appropriation was unexpended. During the year Dr. John R. Nealy resigned and was succeeded by Dr. Podstata.

Pneumonia.—The total 139 deaths from pneumonia are the highest for any December week on record. They form 27 per cent. of the total mortality from all causes, while the 49 deaths from consumption are less than one-tenth the total deaths of the week.

Investigation of Cities by State Board of Health.—The State Board of Health has just finished a sanitary investigation of 75 cities of Illinois, the public water supply of which has been subjected to a careful chemical and bacteriological analysis. The water has been pronounced good in the greater number of cities. In those in which there was evidence of contamination of the water supply, the Board has consulted with the local authorities in the endeavor to discover the cause of the pollution and to suggest a remedy. Sanitary officers of the Board have been sent to the majority of cities for the purpose of investigating unsanitary conditions, and to advise the local authorities as to the steps necessary to prevent an outbreak of disease.

Report of City Health Department for the Year 1903.—Commissioner Arthur R. Reynolds, in his report, says that of the principal cities of the country Chicago has the lowest death rate and spends the least for health purposes. These assertions are based on the latest official reports of the United States Census Office, and the United States Department of Labor. Figures show Chicago's death rate to be 4.7 per cent. lower than the average of 12 other cities.

GENERAL.

Butler's Typhoid Spreading Down the River.—The scourge of typhoid that has Butler, Pa., in its grasp is creeping slowly down the Ohio. Pittsburg's announcement that the number of cases there has increased is followed by the discovery in Wheeling, where typhoid is always prevalent, that new cases are maturing rather more rapidly than before.

German Consumption Cures.—The German Central Committee for Tuberculosis publishes some interesting statistics concerning the results of the open-air treatment of consumptives. During the year 1902 12,187 tuberculous men and 4,302 tuberculous women were treated in open-air hospitals at the expense of the Imperial Workmen's Insurance Office. Of this number, 78 per cent. were so far healed that there is no prospect of the disease rendering them incapable of work. If those cases are deducted in which, after a fortnight's treatment, it was evident that no cure could be effected, the successful cases numbered 81 per cent. Figures published by the Imperial Statistical Office show that the death rate from tuberculosis in German towns of 15,000 and more inhabitants is steadily decreasing. The number per 10,000 who died of consumption in the five years ending in 1881 was 357.7; in 1886, 346.2; in 1891, 304.5; in 1896, 255.5, and in the five years ending 1901, 218.7.

Salicylic Acid Harmful.—The food tests at the Department of Agriculture, which have been going on for several months past, to test the effect of salicylic acid on human health, are reported to have brought out the general fact that salicylic acid seriously injures health.

Tropical Ulcer.—Dr. J. H. Wright, director of the pathological laboratory of the Massachusetts General Hospital, in this city, has announced the discovery that tropical ulcer, a peculiar skin affection common to tropical countries, is caused by a protozoon.

Millions for New Boston Hospital.—The will of the late Peter B. Brigham, of Boston, was sustained by a decision handed down by Justice Lebaron B. Colt, in the United States Circuit Court, on December 30, and the $5,000,000 involved will go toward founding the Brigham Hospital according to the wishes of the testator. The heirs at law contested this provision.

OBITUARY.

Dr. HAMILTON A. WEST, of Galveston, Texas, died December 30, at the home of his brother, Dr. James N. West, 71 West Forty-ninth street, after a brief illness. Dr. West was Secretary of the Board of Health in Galveston during the flood there and performed valuable service in attending to the sufferers. For many years he was Secretary of the State Medical Society of Texas. Up to six weeks ago Dr. West was in active practice. He came to this city for treatment, but all efforts to save his life proved of no avail. Dr. West was born in Russell's Cave, Ky., March 31, 1859. He was a descendant of Samuel West, a brother of an ex-Governor of South Carolina. He was graduated with the highest honors of his class in Louisville, Ky., where he took his degree of M.D. As a physician Dr. West prominently identified himself with the interests of the City of Galveston. He was a professor in the University of Texas, and it was largely due to his efforts that the medical department of that university was founded. He made a special study of typhoid, yellow, and dengue fevers, and helped to point out the distinctions in diagnosis of the two latter. In 1897 Dr. West reported a case of yellow fever in Galveston and brought upon himself the censure of many citizens, who thought the announcement would injure the city. But Dr. West's diagnosis was confirmed by an expert, sent there by the Government. It was Dr. West's contention that such an announcement was for the good of the State of Texas, and he was in favor of quarantining the city lest the disease should spread and there should be an epidemic. Dr. West is survived by a widow and

five children. One of his sons is in business in Galveston and another is at Princeton.

Dr. Anton Eidenbenz, a surgeon, who had practised in this city for over fifty years, died December 31 at St. Luke's Hospital of pneumonia. He was eighty-six years old. Dr. Eidenbenz was born in Hessel-Darmstadt, Germany. He was a surgeon in the Eleventh New York Regiment during the Civil War, and after his return from the army was for many years visiting surgeon of St. Luke's Hospital.

Dr. Silas J. Damon, a wealthy physician, formerly of Boston and Lowell, Mass., died last week at Bridgeport, Conn., aged fifty-eight years.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Own Special Correspondent.)

London, December 12.

TROPICAL MEDICINE—CANCER RESEARCH—THE SECRETARYSHIP OF THE ROYAL SOCIETY—THE ANTIVIVISECTIONIST LIBEL ACTION.

The most notable event of the present week in our little world of medicine here is an address delivered by Sir Patrick Manson at the London School of Tropical Medicine. The occasion was a send-off to the Dean of the School, Sir Francis Lovell, an old medical officer of the Colonial Service, who, two or three years ago, made a very successful begging tour in the tropical regions of the British Empire, and who is about to start on a second mission with the same object. As the fruits of his first expedition he brought back $100,000. The School, which, within the last few months has been greatly enlarged, is now in debt to the amount of $50,000, and like the daughter of the horse leech it still cries "Give, Give." Manson, to whose impulse the institution of special teaching in tropical diseases is mainly due, recited the claims which the London School had already established on the support of the public. Since the School was opened in October, 1899, it has trained some 350 students, that is, graduates of medicine, who go there for special instruction in tropical disease. The number is steadily increasing, showing that the School fulfills a necessary function. In its wards and laboratories students have the opportunity of getting into actual touch with the raw material of tropical disease, the germs which cause them, and the pathological effects of those germs on the human body. Besides being competent to deal with the diseases they meet with in the tropics they are trained in the methods of research so that they are able to grapple with the pathological problems which they have an opportunity of studying. In this way a whole army of eager investigators has arisen within the last five or six years who are throwing light on the dark places of tropical pathology. Sir Patrick Manson went on to mention some of the most important discoveries made by workers in the School. Dr. Low, the present Superintendent, first proved in the laboratory of the School how the blood worm, which is the cause of a group of diseases of the elephantiasis type, gains access to the human body. He showed that at an early stage of its existence the worm is introduced, like the germ of malaria, by the proboscis of the mosquito—a discovery which indicates the means of preventing these diseases. Dr. Forde, a pupil of the School, discovered in the Gambia Colony the presence in the blood of man of a new parasite which was afterward recognized by Dr. Dutton of Liverpool as belonging to the *Trypanosomes*, a group of parasites responsible for many grave diseases in the lower animals. Dr. Aldo Castellani, another pupil of the School, demonstrated the association of the *Trypanosoma* with sleeping sickness. Only a fortnight before the date of the address had the final proof that the *Trypanosoma* was the cause of sleeping sickness been obtained. Last year a patient in whose blood it was conjectured that the parasite was present was admitted to the hospital attached to the School. Dr. Daniels, after long search, succeeded in finding the *Trypanosoma*. The patient left the hospital, but specimens of her blood were sent from time to time to the laboratory for examination. In October she developed symptoms of sleeping sickness, of which she died on November 25, two years and three months after receiving the infection through the bite of a species of tsetse fly, common in the place on the Upper Congo, where she had resided. Sleeping sickness is rapidly spreading not only in the Congo Free State, but in Uganda and elsewhere in Africa. Manson is confident that the discovery of its cause will lead to the discovery of means for its prevention. Manson held that the school from which these discoveries had come had more than justified its existence. A sum of $500,000 is needed to further the work of research, and he earnestly appealed to the public for the money on a frankly utilitarian basis; for any one of the discoveries mentioned, he said, was worth the sum named ten times over.

It remains to be seen whether the School will get the money. It is certainly doing splendid work and, thanks largely to the support which it received from the late "pushful" Secretary of State for the Colonies, Mr. Chamberlain, its light has not been hidden under a bushel. Thanks to the liberality of Sir Alfred Jones, the Liverpool School has plenty of money, but it has no pupils. Still it has done useful work by sending out expeditions to West Africa and elsewhere. What the London School wants is a "pious founder" as free-handed as Jones, but it is doubtful whether it will find one who like him sees in the patronage of scientific research a means of furthering commercial enterprise.

Another subject on which research is very active here at present is cancer. The parasitic theory which almost held the field some time ago is now falling into the background. Mr. Henry Morris, who is Senior Surgeon to the Middlesex Hospital, where opportunities of studying the disease in all its varieties are especially abundant, in a lecture delivered at the Royal College of Surgeons on December 9, declared that up to the present time the microbic theory had not advanced our knowledge of the cause of cancer one step. The truth is, he added, that for the last ten or fifteen years cancer research has been too exclusively directed to microbes and too little to cancer. He expressed a strong opinion in favor of Cohnheim's "tumor germ" theory, which he believes to be the most—indeed the only—probably correct theory of the origin of cancer, and the only hypothesis that explains all the known facts. This theory so far from justifying pessimistic views as to radical treatment or prevention, in Morris' opinion, warrants the hope of a positive cure being effected if the disease is removed quite early and completely. I understand that Dr. Bashford, the Director of the laboratories of the Cancer Research Fund, while keeping an open mind on the subject, also believes that the weight of evidence, as matters stand at present, is against the parasitic theory. In a paper read before the Royal Society by Messrs. Farmer, Moore and Walker, on December 10, a theory, based on the study of a number of fresh specimens, was put forward that the distinctive pathological feature is a special mode of cell division. If they are right, the old "cancer cell," which we used to be taught to regard as a myth, turns

out to be a solid fact. None of the three observers is a member of the medical profession, two of them are zoologists, while the third is a botanist, and they seem to have attacked the problem purely from the biological point of view. If Ray Lankester is right, this fact makes it all the more likely that they have hit on the truth. That eminent zoologist has often expressed his contempt for the mere pathologist, holding that in biology lies the key to the origin of disease. As a proof, he points to the brilliant work of Metchnikoff, who began his scientific career as a zoologist.

The mention of the Royal Society reminds one of what Sir Lucius O'Trigger would have called "a very pretty quarrel," which has been raging among the august beings who manage its affairs. Sir Michael Foster, who recently resigned his chair of physiology in the University of Cambridge, has since given up the post of Secretary to the Royal Society which he has held for many years. The position is one which gives the holder a very large measure of power in the British scientific world, for he is virtually the irresponsible arbiter of the fate of young scientific workers. He can push a man on, indefinitely retard the recognition of his work, or suppress him altogether. In the discharge of such a trust the Secretary of the Royal Society is naturally exposed to much criticism. Being human, he is likely to give effect to personal preferences or prejudices. The position of Secretary has for very many years been held by a representative of scientific medicine, and it was hoped that on Foster's resignation the succession would fall to Dr. Halliburton, Professor of Physiology in King's College, London, one of the foremost of the younger generation of scientific workers here. A circular was issued by many prominent Fellows of the Society in which it was pointed out that "The nature of the science to which he (Halliburton) has particularly applied himself, physiology, places him, as it did both the retiring secretary and his distinguished predecessors, Sharpey and Huxley, at a nodal point for the sciences of the biological group, to which the collateral studies of pathology and medicine are attached." They went on to say that it seems highly advisable "that for the secretaryship there should, on the present occasion, be chosen a Fellow specially cognizant of the great biological field comprised under medical science." Owing, however, it is said to the opposition of Foster, Halliburton was put aside and the choice of the governing body of the Society has fallen on the veteran geologist, Sir Archibald Geikie. The choice of the President and Council, as Count Smorltork said to Mr. Pickwick, "surprise by himself," but the fact that Geikie should have accepted the post is still more amazing. He is seventy years of age; whatever ambitions he may have cherished in early life have been amply satisfied and he has practically retired from the field of scientific work. The spectacle of such a man accepting a post which taxes all the energy of a man in the prime of life makes one ask *Que diable est-il aller faire dans cette galère?* One hears whispers of jealousy of the representatives of medical science in the heavenly souls of the Council of the Royal Society. It is possible, however, that the explanation of their choice of an old man is a compromise like that which is known to have not infrequently made conflicting parties in the Sacred College agree to place in the chair of St. Peter an old man who should fill it long enough to give them the chance of strengthening their forces for a fresh fight.

The verdict in the action recently brought by Dr. Bayliss, one of the professors of physiology in University College, London, for slander against Mr. Stephen Coleridge, Honorary Secretary of the National Antivivisection Society, has given great satisfaction not only to the medical profession, but to level-headed men of all classes. The press, with the exception of one or two unimportant papers, has strongly condemned Mr. Coleridge's methods. His charges were shown in court to be based on nothing more solid than the statements of two ladies, who, on inquiry, turned out to be the Secretaries of a Swedish Antivivisection Society. Yet these ladies, who had attended Dr. Bayliss' class, not as students, but as spies, and who had described what they fancied they saw, or wished to see, in a book which the Lord Chief Justice who tried the case characterized as "hysterical," were put forward by Mr. Coleridge, as independent witnesses. Their cross examination seriously damaged his case, and it was utterly ruined by his own evidence. This, which was reluctantly and evasively given, showed that he had accepted the statements of the Swedish ladies without taking the trouble to test them in any way whatever. He practically said that he would not believe a vivisector on oath, and he treated the reports of the Government inspectors and the statements of the Home Secretary in the House of Commons in the like cavalier fashion. Yet, when a statement appears that the damages and costs of the trial, amounting to some $22,500, are to be defrayed by the Society which he represents, his solicitor gravely writes to the papers to say that the balance sheet to be published in the annual report will show that none of the funds have been used for the purpose. Apparently, therefore, Mr. Coleridge while refusing to accept statements of responsible officials and Ministers of State which do not suit his purpose, expects that the reports of his Society will be accepted as gospel truth. The trial will not stop the fanatical agitation of the antivivisectionists, but it may be hoped that it has taught them the salutary lesson that they must use a certain measure of discretion in their systematic lying.

LEUCOCYTOSIS IN APPENDICITIS.

To the Editor of the MEDICAL NEWS:

DEAR SIR: Allow me to make a most respectful but earnest criticism of the discussion on appendicitis, reported in your issue of Dec. 26, 1903, with particular reference to the remarks of Dr. George Brewer on leucocytosis. Dr. Brewer is certainly right in stating the fact that there is general disappointment regarding the results of blood examinations in appendix cases. But this disappointment is due to an attitude on the part of the profession, and, especially, of operators, which is not justified when we consider that leucocytosis is not an essential part of the septic process, but a reaction on the part of certain cells of the body. The great trouble is that we are always looking for pathognomonic signs and specific drugs, although we ought to realize that this quest is not much more reasonable than that of Ponce de Leon. Like Ponce de Leon, too, we fail to realize the value of what we discover, unless it fulfills our desire for the miraculous.

Leucocytosis is like accelerated pulse, high temperature, albuminuria, etc., of little value as pathognomonic evidence of anything and sometimes wanting when we think it ought to be present. I once had a consolidated pulmonary lobe without a particle of fever and one of my patients has recently manifested a pleuritic friction sound and other evidences of pleurisy, without rise of temperature, but I have not yet thrown away my thermometer.

The practical diagnostic point in appendicitis (why not say scolecitis?) is as to the necessity of operating, and operation in acute cases is indicated by two radically different processes, sepsis and necrosis. Either may

lead indirectly to the other, but they are, and in a rather literal sense, as different as life and death. Gangrene will not produce leucocytosis and sepsis will not if the resisting powers are too low. If we analyze this latter statement, it proves to be the crudest kind of a truism; if the body lacks reactive power, it will not react. But, in the great majority of cases, we can depend upon leucocytosis or its absence to indicate or contraindicate operation. Of course, the case should be studied carefully by a medical expert, not simply by a pathologist or an operator; and with regard to pulse, temperature, urine, local signs and general symptoms.

It seems that the reporter must have misunderstood Dr. Brewer in saying, "Very recently he has found that the differential leucocyte count seems to give important information. . . . the polynuclear leucocytes are increased much more than in their due proportion. Usually the polynuclears number about 62 per cent. of all the leucocytes. When over 70 per cent. . . . are present the surgeon may look for abundant pus formation." I have personally paid attention to this point for at least three years and it was not original or even unknown among hematologists at that time. But 70 per cent. of multinuclear (not polynuclear) cells are within normal limits, and no definite percentage can be assigned to suppuration. For instance, in normal blood we have about 5,000 to 8,000 leucocytes per cubic mm. Of these, ½ to 3 per cent. will be eosinophiles, 20 to 25 per cent. lymphocytes, and the remainder, about 75 per cent., will be multiformenuclears or polymorphokarytic cells. (Let us use either Latin or Greek, but not both in the same word.) If the so-called transition cells are excluded from the polymorphic cells, the percentage will be somewhat less, as Dr. Brewer states. As I understand it, any increase in leucocytes is on account of reaction to sepsis, consists almost entirely of polymorphokarytic cells. Thus, the percentage will increase according to ordinary arithmetic rules for mixture. For practical purposes, a leucocytosis that has to be counted to be appreciated, is not of great value, although an accurate series of counts showing significant increase or decrease, is of diagnostic and prognostic importance.

It would require too much time to go into the discussion of the relative merits of medical and surgical treatment. Suffice it to say that any such discussion implies the belief that promiscuous operation for symptoms pointing to some disturbance in the appendix is as illogical as similar recourse to surgery in other parts of the body.

Very truly yours,

A. L. Benedict.

SPECIAL ARTICLE.

BYWAYS OF MEDICAL LITERATURE.—XIX.

NON-EXERCISE AND LOSS OF FUNCTION.

In an article on Indifferentism in a recent number of the *Atlantic Monthly*, the editor, Mr. Bliss Perry, insists on the dangers of overspecialization with the consequent possibility of the loss through failure of function of a number of important intellectual faculties that would otherwise be a source of pleasure and perhaps even of profit. It is easy to understand after all that for lack of exercise many tastes and intellectual operations that would be at least important stimulating means of recreation, are lost through too close application to a few things. There are those who find in the present elective system of education this very danger. From his earliest serious years the student applies himself to something that he hopes will be of practical service to him later in life. His college course is only an introduction to his professional studies and gradually all his intellectual life comes to center around the narrow circle of his vocation in life. It is a warning to the young man commencing his studies, to the young physician entering upon his practical career and to the old physician who is often given the opportunity to advise others to realize the force of the example in this matter quoted by Mr. Perry:

"Here is a well-known passage from the autobiography of one of the most gentle, honest and unquestionably great men of our own day. It is the passage where Charles Darwin confesses his loss of interest in certain things which had once moved him deeply. The words are frequently commented upon as illustrating the atrophy of unused faculties. That is indeed their obvious purport, but as you read them, note how perfectly they echo, more than a century afterward the very tones of Signor Pococurante's confession in his library:

"'I have said that in one respect my mind has changed during the last twenty or thirty years. Up to the age of thirty, or beyond it, poetry of many kinds, such as the works of Milton, Gray, Byron, Wordsworth, Coleridge, and Shelley, gave me great pleasure, and even as a schoolboy I took great delight in Shakespeare, especially in the historical plays. I have also said that formerly pictures gave me considerable, and music very great delight. But now for many years I cannot endure to read a line of poetry. I have tried lately to read Shakespeare, and found it so intolerably dull that it nauseated me. I have also almost lost my taste for pictures or music. Music generally sets me thinking too energetically on what I have been at work on, instead of giving me pleasure. I retain some taste for fine scenery, but it does not cause me the exquisite delight which it formerly did. . . .

"'This curious and lamentable loss of the higher esthetic tastes is all the odder, as books on history, biography, and travels (independently of any scientific facts which they may contain), and essays on all sorts of subjects interest me as much as they ever did. My mind seems to have become a kind of machine for grinding general laws out of large collections of facts, but why this should have caused the atrophy of that part of the brain alone, on which the higher tastes depend, I cannot conceive. A man with a mind more highly organized or better constituted than mine would not, I suppose, have thus suffered; and if I had to live my life again, I would have made a rule to read some poetry and listen to some music at least once every week; for perhaps the parts of my brain now atrophied would thus have been kept active through use. The loss of these tastes is a loss of happiness, and may possibly be injurious to the intellect, and more probably to the moral character, by enfeebling the emotional part of our nature.'"

It is manifest that such atrophy of interests is not only a positive loss to the individual but is almost sure to impair the full significance of his life-work, since it narrows his point of view and makes him incapable of appreciating with entire correctness even his own chosen lines of thought. The only prophylaxis against this narrowing of intellect is a broad liberal education in the impressionable developmental period when the mind is susceptible to the acquisition of new interests and when these are likely to be permanent possessions if the habits they initiate become sufficiently part of the organism.

ANATOMY AND DISPOSITION.

In the course of some editorial discussion of that very interesting question: Shall the promise to obey on the part of the bride be omitted from the marriage

service? one of the religious weeklies, published in New York, gives the details of the change that has come over the meaning of the word buxom in the last couple of centuries. Some of the old marriage services have the expression and the woman shall be buxom to her husband; that is, shall be bowsome, in which the root to bow is obvious and the sense of obsequious, obedient, is clear. The nearest relative in a modern language is perhaps the German biegsam—flexible.

At the present time, however, buxom has come exclusively to have the meaning of vigorous, robust, with an added kind of largeness, breadth, sturdiness of body, and then the sense of cheerfulness, good temper. It is evident that somehow the realization has come into the mind of English humanity at least, that largeness of body is associated with submissiveness of disposition, that the woman ready to obey is more apt to be generous of proportion than otherwise. Hence has come the modern and now practically exclusive meaning of the word buxom. The change thus brought about enshrines the expression of the principle that Antony enunciates when he insists on his distrust of the lean and hungry Cassius in Shakespeare's Julius Cæsar. This tendency for students of human nature to find in the anatomical constitution an expression of the inner character is of course common at all times. It would be interesting to know whether the impressions thus conveyed are borne out by statistics. At the present time such words as ascetic are coming to have a physical rather than a spiritual sense, as if the influence of body on mind were more generally recognized than hitherto. The book recently written, "Why the Mind has a Body" is an exemplification at length of this newer state of feeling in these matters.

IBSEN AS A MENTAL NOSOLOGIST.

Those who are interested in Ibsen have been given an opportunity in New York and neighboring cities to see another excellent example of his supreme power of putting a disease entity upon the stage Of course it may be doubted how far the study of diseased conditions and their representation in dramatic form are a true subject for artistic effort, but then, as has been very clearly established by Kipling in his poem on the subject, it's clever and so forth, but is it art? This is a question that may be asked of many other things besides Ibsen's dramas. The latest production here in America, Hedda Gabler, is after all the simple straightforward story of a pregnancy psychosis. The heroine (save the mark)—let us say instead the principal female character—is an intensely selfish young woman before her marriage and all her selfishness and other undesirable qualities become intensified during the course of her pregnancy shortly after marriage.

Such a train of incidents, of course, is not an unusual occurrence in ordinary life. There is many a husband who dreads the recurrence of pregnancy because during its course life is so often made unbearable for him by the irritative nervous condition which develops in his wife. Of course, an opposite effect as the result of which the wife becomes especially solicitous and tender in her husband's regard during pregnancy is (the Lord be thanked), perhaps, even more frequent than the opposite condition, while the characters of most women are left practically unchanged.

Ibsen has taken an extreme example of the young woman eminently unlovable because of the self-centered concentration of her thoughts on herself at all times and has represented her character becoming absolutely malignant in its hatefulness under the influence of the pregnancy psychosis. As a result of this she tempts the man who has broken with the drink habit to return to liquor, and having obtained possession of the book that he wrote and which would probably serve to make his fame she deliberately burns it. Having brought disgrace upon him she provides him with the means of suicide and suggests it. He unfortunately, according to her idea, does not commit suicide in the esthetic manner in which she planned it for him, she proceeds to take her own life.

Needless to say these materials can be used in a very impressive and dramatic fashion. It is clearly, however, neither a study in manners nor in morals, but a study in neurology and nervous pathology. It seems too bad that the pitiful condition which develops in the young mother's mental state and which brings about all the extremity of the horrible denouements should be put upon the stage as if somehow it were a natural development out of a given environment. This is the fault with all of Ibsen's work that he deliberately selects some type of mental disease and puts it upon the stage. A century and a half ago it was the custom for London society people with nothing to do to go out to Bedlam, the insane asylum of the city and find amusement in watching the antics of the insane people. The idea of doing such a thing would be eminently repugnant to the present generation. As a matter of fact, however, the craving to see the plays that Ibsen writes is rooted in the same morbid new sensation-loving feeling which made the Londoners laugh at their insane. It has been pointed out some time ago that Ibsen's Ghosts is practically a study of paresis. Others of his dramas illustrate other phases of mental alienation. If the diseased condition were, as is the case with the introduction of Ophelia into Hamlet, only an incident in the course of the development of the plot then it might well find a place, since mental disease has a definite though very subsidiary place in actual life. But when the whole drama turns on the repugnant though wonderfully naturalistic description, it must be confessed of a type of nervous disease and nothing else, there can be no question of great art, since there is a pandering to the morbid side of human nature in order to produce effects and secure applause and interest by the very horror aroused.

A PHYSICIAN POET.

The present renewed interest in Gaelic literature has called attention once more to the career of a distinguished physician-poet very well known in Boston some twenty years ago and admired by all those who came in contact with him. One of the most interesting remnants of the old Gaelic literature is the story of Deirdre. Deirdre is the fair-haired Helen, of Irish mythical lore, the Princess of Ulster, on whose account it was prophesied before her birth by the old Druids that more blood would be shed than ever was shed in the land since the race began. "She will be fair, comely bright haired," as Lady Gregory put it in her recent version of Cuchulain "heroes will fight for her and kings go seeking her." "You will have a little grave apart to yourself; you will be a tale of wonder forever, Deirdre."

It was on this subject that Dr. Robert Dwyer Joyce, wrote his widely read poem of Deirdre, which was published by Roberts Brothers, of Boston, in their No Name Series in 1877, producing quite a literary sensation in the Boston of those days, as well as in other literary circles throughout the country. After the success of his poem had been widely proclaimed the author disclosed his identity. He was a practising physician of Boston and came of an ancient and distinguished Irish family. He had graduated as a physician at Trinity College, Dublin, and had practised for several

years in Cork before coming to this country in the early seventies.

A friend, Mr. Ormonde M. Reid, once asked him where he got the time in his busy professional life to write such a poem. He said that he had composed it on the street, in his study, anywhere and everywhere when his mind was not occupied with his profession.

Unfortunately only a few years after the publication of this poem his health gave way, the underlying condition in his illness evidently being tuberculosis, he returned to Ireland where, however, he did not long survive.

At the time of his death, the Boston papers published very flattering obituary notices and many of the magazines gave critical reviews of his literary work. It seems especially fortunate that the Gaelic movement has revived interest in the career and work of a man whose literary ability succeeded in making a place for him in English literature, even in the midst of the busy work which he had to accomplish in order to succeed in the task, ungrateful though it may be, yet absolutely necessary of doing, what John Hunter termed, "chasing the damned guinea."

NEUROSES IN FICTION.

Our modern fiction and playwriting has become so expressive of phases of neurotic feeling rather than of genuine traits of normal humanity, that even the literary critics are beginning to recognize that the neurosis is fashionable in fiction and that only those who are so morbidly introspective as to exhibit phases of feeling that are sedulously concealed, are commanding popular attention. In an article on Neurotic Symptoms in Recent Fiction, in the winter book number of the *Independent* of New York (Nov. 19, 1903), Mrs. L. H. Harris inveighs against this unfortunate tendency in our literature. She insists that sanity is the thing most to be desired. Sanity and a little dulness, for after all it is only the dull people who are quite sane. They do not know too much, and they do not feel too much, but they are safe. Their wits are not very keen, nor their spiritual altitudes very high, but they have an ethical quality that insures moral equilibrium. It is not good to be able to thank the Lord that we are not as other men, for the average of mankind is nearest to mental balance in present conditions when "half the world is off and the other half not quite on."

"In the first place, it will be observed that in novels of this class the neurotic condition is generally founded upon the sex element. Only a few authors venture to include the religious interest in this hectic demonstration of human passions. As a rule, a sickly yearning for the 'unutterable' takes the place of action and healthy aspiration in these books. In 'The Story of Mary McLane' we have an indecent exposure of an erotic temperament. Such types have always existed, of course; but the question is by what influence was the intelligence made to seize upon these secrets of a depraved nature and interpret them aloud? What is it in American life that gives courage for such a performance? We have too much enterprise in sensations. And in these feverish times we have made too free a use of our wits in the lower regions of existence, so that we are becoming too well informed as to what lies in our darkness. Formerly there was a simplicity in vice, an objectivity that evidenced and defined it, but this extension of mind into the nervous centers of passion has given a neurotic genius to its very weakness. It has added an accusation to consciousness and discovered to every reader of fiction the psychic regions of a new kind of criminality."

Mrs Harris points out that Southern writers from whom, according to temperament, most divagations in this matter might have been expected, are freest from them, showing that they are deliberate. She continues "And this is not inconsiderable praise when we reflect that in the North, East and West, wherever wit has been sharpened most by science, energy quickened by competitive ambitions, and intelligence deepened by study and meditation, we find a certain genius for revelation, a disposition to expose everything, from commercial facts to the nervous nakedness of the secret mind. Sexual perversity becomes philosophical and fascinating through a neurotic power of portrayal. Indeed, our scriptures of life are too much concerned with the underworld of passions, and our gospels are too much of wickedness—all of which is unfortunate when we remember how young we are, and how long we must hold out against the mania and wretchedness of that darkness which is before and behind us in prophecy and history."

There is no doubt that many morbid conditions are suggestively being emphasized, exaggerated and rendered inveterate by these pictures of pathological mental peculiarities. Just as the physical hypochondriac finds new symptoms in every medical discussion so the mentally disequilibrated find new fads in each problem novel that touch on all their own alienate ways.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

SECTION OF GENITO-URINARY SURGERY.

Stated Meeting, held November 18, 1903.

The President, John Van der Poel, M.D., in the Chair.

Instrument for Illumination of the Bladder.—Dr. F. Tilden Brown presented a useful instrument* (Fig. 1) for illuminating the bladder during suprapubic work. An electric light is passed through the urethra and controlled by an assistant, the cold lamp illumination being at the internal urethral orifice, thus having it most centrally placed as well as conserving room for the operative field. It could also be tucked in pockets within or about the bladder when passed through the suprapubic opening. The electric cord is to be sterilized by formaldehyde vapor and the metal part by boiling. In doing suprapubic prostatectomy, instead of working in the dark and by touch alone, this instrument† permitted one to see bleeding vessels which could be caught by forceps and subjected to torsion or ligature, thus the aspect of any such operation in the bladder is very materially changed. He also showed an arrangement of two specially right-angled catheters (Fig. 2) for suprapubic drainage; one leads from the bladder through the urethra, the other through the wound. These are fastened together at their lateral eyes before the operation, the one known as Carlton's catheter has its short arm of 3½ inches, a very suitable average length for the intravesical portion of a suprapubic drain. While Dr. Brown's catheter for the urethra has its short arm of three-quarters of an inch. Both have lateral, as well as terminal eyes. His scheme in using these conjoined catheters for suprapubic drainage, is, after the operation, but before partial closure of the suprapubic wound, to draw the distal end of the urethral catheter in retro-

* Before having this simpler illuminator made he had used for the same purpose the sheath of his composite cystoscope through which also the preliminary irrigation can be done as well as the air distention of the bladder to lift the peritoneum just before opening the former.

† The author's torsion forceps, devised for vessels inaccessible to ligature. The corrugated button facilitates rapid twirling while maintained in the original axis.

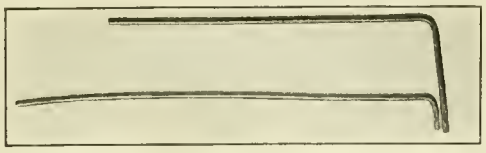
grade fashion from the bladder outward, then sometimes putting a safety pin through its wall just at the external meatus; while the method of removal after the suprapubic wound had all but closed is to take the safety pin

Fig. 1.

F. Tilden Brown's Intravesical Lamp for Suprapubic Operations.

from the urethral catheter and draw upon the suprapubic catheter, bringing its lateral eye close to the mucosa; then inserting a pair of blunt pointed, but delicate, scissors, first using as a probe to feel the connecting thread before opening them to cut it. For a few days longer,

Fig. 2.



F. Tilden Brown's Arrangement of Catheters for Conjoined Urethral and Suprapubic Drainage of the Bladder.

until closure of the wound, the urethral catheter is advantageously kept in place to prevent suprapubic leakage.

Dr. F. Tilden Brown said it was very important to avoid any operation solely upon the tuberculous bladder when one kidney or both were similarly diseased. He

Fig. 3.

F. Tilden Brown's Small, Sharp Curette for Ureter and Bladder.

believed it to be a waste of effort, and only harm could result when we gave the bladder an additional outlet while this viscus was mainly suffering from being fed with infected material from one or the other kidney. In answer to Dr. Le Fevre, Dr. Brown said that so far

Fig. 4.

F. Tilden Brown's Torsion Forceps.

as could be determined by a most careful examination in the case of the nephrectomy patient shown there were no other foci in the body. With regard to suprapubic cystotomy for tuberculous bladder lesions he said that the frequency with which permanent fistulæ followed these operations was due many times to carelessness in not anticipating the various conditions and possible complications. Consequently in not making proper provision by having at hand before the operation was begun the means to treat any such lesions actively and thoroughly either with the small sharp curette, galvano cautery, strong nitrate of silver solution or other known therapeutic measures, and then to close the bladder wound in layers providing only for a little drainage in the prevesical space. The unnecessary employment of water for distending the bladder previous to its opening was often responsible for pericystic infections. He believed it to be a fallacy to leave the suprapubic wound to take care of itself, to heal or remain open with the chance of becoming a source of great discomfort to the patient. In addition he believed the surgeon should be previously posted as to just what he was going to encounter by making a preliminary cystoscopic examination and then lay his plans for the sort of attack required as well as for the most appropriate subsequent drainage; this latter may be met by a somewhat continuous urethral drainage by retained catheter, or possibly perineal or vaginal. While in cases of advanced and extensive tuberculosis of the urinary tract with contracted bladder every care should be taken to maintain a most comfortable and permanent suprapubic drainage until the end. Large stiff tubes should be avoided. Dr. Brown said that two months ago he had occasion to remove a testicle which, from the physical signs, situation and clinical history, led him to presume it to be of cancerous nature. After removal and cutting into it he was still inclined to think the diagnosis correct. The pathologist reported, however, that it was tuberculous and involved the testis and not the epididymis.

Dr. John Van der Poel said he could vouch for the usefulness and practicability of the electric light shown by Dr. Brown, as it had been his good fortune to have used it in a bladder operation, when it gave a most excellent view of all parts of that organ, without in the slightest encroaching upon the space necessary for the operator. It seemed to fill a long felt want, and was much to be preferred to reflection from an electric light on the forehead.

Case of Nephrectomy for Renal Tuberculosis.—In connection with a short paper to follow, Dr. F. Tilden Brown showed a male patient, thirty-eight years of age, who, six years ago, came under his care suffering from frequent urination and severe right loin pains. The discomfort was so great that he was willing to have anything done for his relief. An examination of the urine showed the presence of tubercle bacilli, although scanty in number, and a turbid urine. It was necessary to learn positively which kidney was at fault if either, and to find out the condition of the other gland; therefore, the ureters were catheterized and the left kidney was found to be functionating normally, but the right was not, and its urine contained tubercle bacilli and leucocytes. Nephrectomy was advised and done at the Presbyterian Hospital when this quite unusual kidney* presented, where, instead of the ordinary necrotic or caseating foci, the surface revealed the appearances commonly seen in rather recent miliary tuberculosis and the interior was much of the same character. In addition there was a single cyst of walnut size at the lower pole. The patient was very stout and had had a previous operation performed for appendicitis some years before, which had left him with a somewhat protruding cicatrix at the place where an oblique lumbar incision would run into it. Hoping to avoid any hernial increase of this,

* Depicted in Reference Handbook of the Medical Sciences, Vol. 5, page 340.

as well as the bound down parietal peritoneum in the old scar, Dr. Brown made a vertical-longitudinal incision connected with a right-angled subcostal one; this enabled him to get at the kidney on stripping the parietal peritoneum forward. The kidney was removed with about an inch of the ureter; on account of the full abdomen and its thick walls, it was necessary to make a very generous incision. The patient has since been wholly free from pain, as well as evidences of urinary or other regional tuberculosis, so far as any demonstration of tubercle bacilli was concerned. Inoculations of the very scanty urine sediment in guinea-pigs had been carried on with negative results. It was interesting to note that the patient still has pollakiuria, not so marked as before, but yet unduly frequent, and this has been the main reason for the vain search for tubercle bacilli emanating perhaps from other parts of the tract. But no suspicion of a tuberculous focus can be raised, unless a very small but sensitive nodule in the prostate is of this nature. Therefore, it was concluded that his frequency in urination was the result of habit and also a somewhat previously contracted bladder, which is so often co-existent in this disease. At different times during the past six years, for short periods, he has been placed under dilatation treatment by intravesical irrigation with beneficial results. He is again under such treatment, and during a period of three weeks his vesical capacity has increased from two to six ounces, and his urinating intervals have proportionately increased.

Chronic Orchitis with Tuberculous Infection Simulating Sarcoma.—This was the title of Dr. John F. Erdmann's paper. This specimen was the right testicle removed from a physician about thirty-two years of age, who was seen on the third day of May of 1903. He stated that in 1899 while a student, taking notes, that in crossing the left thigh over the right he felt a sharp pain in the right testis as a result. That a slight epididymitis followed, but that later on the whole testicle swelled. This was about two months after the original injury. For the past year he noticed that it increased to about twice the normal size; that in the last six months it had begun to grow rapidly, having doubled its size of six months before. He had absolutely no specific, tuberculous or malignant history; never had had a gonorrhea. In the examination the testicle was found to be the size of a large goose egg, perfectly symmetrical, hard, no pain, sensitive only upon deep pressure. Examination of prostate and cord showed no enlargement, neither did the inguinal glands. The patient was placed upon anti-syphilitic treatment for a time; iodide of potassium as high as 300 grains a day, with no effect. Excision of the testis advised on the ground that it was a sarcoma. This was done August 30. High excision of the cord was done. Careful examination clinically of the vas showed no invasion. When shown to the pathologist he immediately stated sarcoma, and was astounded at the result shown by microscopical section. It was then proven to be a tuberculous invasion of a general orchitis. The patient has been seen since, showing no secondary manifestations on the opposite side, nor has he at any time had any tuberculous manifestations.

Dr. F. Tilden Brown said that two months ago he had occasion to remove a testicle which, from the clinical history, led him to presume it to be of cancerous nature. After removing it and cutting into it he was still inclined to think the diagnosis correct. The pathologist reported, however, that it was tuberculous, and involved the testis and not the epididymis.

Dr. Eugene Fuller said he had a case some time ago that was apparently like the one reported by Dr. Erdmann. The testicle on section seemed to be studded with tuberculous foci and there were masses which looked like broken-down cheesy areas. The organ was quite large. Section of it was made and sent to the pathologist, but he reported it to be a sarcoma. Six months after this the patient again appeared with a sarcomatous liver. In this instance he said the patient had sarcoma when it was believed, on clinical inspection, to be tuberculosis.

Specimen of a Tuberculous Kidney.—Dr. F. Tilden Brown presented this specimen removed from the left side of a man aged thirty years. The diagnosis had been made by finding tubercle bacilli in the voluntary urine, and the localization of the disease then effected by ureteral catheterization. The patient was advised to take a period of rest, a change of air, etc., during the summer months. He returned from the woods for operation in October, having gained twelve pounds, and with less severe loin pain. Nephrectomy was simple and typical in all respects, except that the pedicle was exceedingly short, which made the operation unusually difficult. Although the preliminary exposure of the organ was a generous one, traction upon the areolar tissue and flaps with retractors was believed to be the reason for subsequent failure to get primary union. Fortunately the individual muscular and aponeurotic layers healed, but the skin wound fell apart throughout nearly its entire extent. In spite of an existing lack of ordinary reparative processes and the customary granulating surfaces in the superficial parts of the wound, the patient has in all other respects done very well. He voids a normal amount of urine and passes it only four times in twenty-four hours. In this patient's case, even before operation, the usual degree of frequency had not been a symptom. The intervals had averaged from three to three and a half hours. His first intimation of trouble consisted in noticing blood-tinged urine, together with left lumbar pain after a long swim in cold water. At the time of synchronous ureteral catheterization quite a number of small superficial hyperemic erosions of the bladder wall were noted through the cystoscope, mostly behind the left ureteral opening. They were such lesions as the speaker has elsewhere alluded to as not uncommonly associated with a renal tuberculosis, and regarding which he has satisfied himself as to the subsequent disappearance after removing the diseased kidney.

Dr. Eugene Fuller said that patients with pericystitis associated with contracted bladder were always left in a worse condition after drainage of the bladder than before. About ten days ago he saw such a case upon whom he refused to operate; the bladder was contracted and had been washed out for fifteen months, a procedure which had apparently aggravated the lesion; the whole interior of the bladder showed a granular mucous membrane, much thickened and shrunken. He believed that anybody who operated upon this patient would come to greatly regret having done so, for the bladder would shrink all the more as the result of drainage. The only thing to do in this case was to treat the patient therapeutically and hygienically.

Dr. Egbert Le Fevre said that in both private and hospital practice where there was pulmonary tuberculosis he had only observed a few cases in which there was a secondary involvement of the kidney or bladder. In the majority of the cases of genito-urinary tuberculosis there had been a secondary involvement of the testes. Whether his observations differed from those of genito-urinary surgeons he could not say. With regard to primary involvement of the genito-urinary tract with secondary involvement of the respiratory tract he had but two authentic cases; in two others with late pulmonary involvement they had the ordinary symptoms of bladder tuberculosis for some time previous. He examined the lungs at that time and made repeated examinations extending over 1½ years, even injecting tuberculin to see

if he could get any increase of physical signs that would warrant a diagnosis of pulmonary tuberculosis. Six months after the last examination one of the patients developed an apex lesion. In that case there was a pulmonary involvement three years after that of the bladder. He referred to certain experiments in which the tubercle bacilli had been injected into the bladders of animals and a secondary infection of the lungs had followed. These experiments were carried on to prove the theory as to the likelihood of tubercules being deposited in the apices of lungs by the blood-vessels, the bacilli being carried there from other parts, as the bladder. With regard to the treatment of genito-urinary tuberculosis, especially bladder, he had never had much permanent relief from surgical interference. In two cases in which there was primary involvement of the lungs the kidney symptoms entirely disappeared with the improvement of the pulmonary condition. He did not think the kidneys furnished a good soil for the growth of the tubercle bacilli and the occurrence of subsequent lesions. Only when there was a marked deterioration of the health was there any localization of the tubercle bacilli in the kidney which would be followed by a marked lesion. He asked Dr. Brown if, in the kidney case presented, there were any secondary deposits elsewhere in the body. He said that in the later stages of general miliary tuberculosis kidney lesions were rather common. Excluding such a general infection he said that one rarely saw such a marked implantation of tuberculosis, as was shown in the photograph of the kidney of the case, who was shown, except when it was done to extension from contiguous organs, or infection, blood going to one kidney by rupture of tuberculous material into it.

Dr. Eugene Fuller cautioned against too great an effort to make diagnoses through instrumental exploration in cases of suspected genito-urinary tuberculosis, lest a quiescent focus of tuberculosis be transformed into an active one. A patient may come to one feeling fairly comfortable; he may be simply urinating frequently, but without pain. If one should examine him with a sound, no matter how clean, or if he should search for a stone in the bladder and handle the instrument rather roughly, one may then stir up a great deal of discomfort, incontinence of urine, perhaps, and much pain, so that the patient would blame the surgeon for using the instrument. Before approaching such patients with instruments Dr. Fuller advised that we should try bacteriological aids first and go more into the history. If an instrument should be used the patient should be cautioned regarding the after-effects. In regard to the general question of operative surgery in these cases, he believed that we should lean toward conservatism. If there is not too much pyrexia he advocated the hygienic treatment; if there is much pyrexia and a suppurative focus, the latter should be gotten rid of in a surgical way and then therapeutic and hygienic measures should be adopted. He did not believe it was wise to operate upon a bladder when there was an active focus of tuberculosis elsewhere in the body; that is, if a kidney was involved he did not see any use in operating upon a bladder, even though it be involved, because this might stir up the tuberculosis in the kidney, and we might get other foci.

He said he was not as fond of the suprapubic operation for tuberculosis of the bladder as Dr. Johnson seemed to be. A few years ago Guyon gave it up and returned to perineal cystotomy. Once in a while one got good results from such drainage operations, but very frequently the results were deplorable. He said he was not as radical in the surgery of the genital tract as Dr. Blake, and he felt rather strongly against castration, as a rule, in those cases where the epididymis only was involved. In 90 per cent. of the cases where there was tuberculosis of the epididymis the testicle proper was not involved. He said he supposed he had removed epididymes and spared the testicles fifty times, and he had not left his patients with persisting sinuses. Recently a man appeared in his clinic from whom four years ago he removed the epididymis on one side. This patient when first seen had but one testicle, the other having been removed two years previously during an attack of tuberculous epididymitis. He then had an acute suppurative tuberculous process in connection with the remaining epididymis, and it was with difficulty the testicle was saved. That was four years ago. He is now a mentally satisfied man, with good sexual vigor. In cases of tuberculosis of one epididymis if the testicle is removed it was probable that within one or two years the other testicle would become involved. He believed that if the dissection was begun low down, peeling off a great deal by blunt dissection with the fingers, one could get the diseased portion away from the testicle without materially damaging its blood supply; but, if one began at the top and dissected downward, the blood supply would quite likely be disturbed. A man with a testicle, even though the epididymis has been removed, retains his masculine characteristics. He considered that a patient should not be deprived of his sexuality, except on the most urgent necessity.

Dr. Ellsworth Eliot, Jr. said it was often a very difficult matter to make a diagnosis of tuberculosis of the kidney during the early months from both subjective and objective symptoms. Two years ago in the medical wards of the Presbyterian Hospital a patient was admitted, who, for a number of weeks, had irregular fever and irregular abdominal pain, which pointed to the possibility of typhoid fever. This was finally excluded and he was transferred to the surgical division with a tentative diagnosis of appendicitis. During this time the pain did not remain in any one quadrant of the abdomen, although it did remain upon the side that subsequently was found to be that of the affected kidney. At the end of three or four months, during which time the urinary symptoms, notwithstanding the repeated examinations of the urine, failed to elicit the bacilli, the patient developed a tumor in the left flank. A diagnosis of some kidney difficulty was made, the kidney was removed, and found to be in a state of acute tuberculous necrosis, that organ being one mass of multilocular abscess cavities. He believed a radical procedure in cases of tuberculous kidney may be of benefit, but he realized that it was not always curative. He referred to a case of nephrectomy which was followed only by temporary relief in spite of the fact that the urine was apparently normal for weeks; yet the other kidney became affected, and, in the course of eight months after the nephrectomy, the patient died from tuberculosis of the opposite kidney associated with perinephritic abscesses. There were also extensive changes in the lungs which had not yielded physical signs eight months previously. He believed the limits of the operation should be extended, as for instance, in those cases in which tuberculosis was not necessarily limited to one kidney, or had invaded distant organs; in such cases in which tuberculosis invaded both kidneys he believed the kidney more affected should be removed when the daily amount of urea, and other solid material was not materially abnormal, and that the patient might recover and enjoy a respite from the disease with almost a complete subsidence of the tuberculous process in the remaining kidney. The end results in these cases were of interest. He referred to one case in which a left nephrectomy was done for a tuberculous kidney; at the same time there were tuberculous foci in the lungs in quiet condition, and a healed Pott's disease, tuberculosis and tuberculous cystitis of the pleura, and

yet the patient recovered from the nephrectomy and had had good health since. The operation was performed one year ago last August. He recommended nephrectomy when the tuberculous lesion appeared to be in one kidney only; here the end results were satisfactory. He said many cases, after such an operation, had remained well for from three, four, five, six or eight years.

With regard to tuberculosis of the testicle he said that where formerly he inclined toward the radical procedure of castration, within recent years he rather advocated the removal of the diseased tissue when limited to the epididymis. In many cases the disease seemed to be checked, the oldest case he had dating back 3½ years. A young doctor came to him with a tuberculous epididymis, and the patient objecting to castration, the tuberculous foci upon the diseased side were excised, requiring the removal of the epididymis. This patient made an excellent recovery and no recurrence has ever taken place, so far as any external examination could determine. Two years after the primary operation, however, he developed a tuberculosis of the opposite testicle, which yielded satisfactorily to the same therapeutic measure. The patient had been healthy ever since, and there has been no atrophy of the testicle on either side. In many cases he did not believe that atrophy need necessarily follow. If a part of the epididymis only be removed he believed that procreation, in certain cases, was possible.

Dr. A. A. Berg agreed that in the presence of secondary vesical tuberculosis, it was essential and absolutely necessary to attack the primary focus of disease. As a rule, secondary vesical tuberculosis healed, when the primary focus was removed, and the patients were placed amidst good hygienic surroundings. To him it was a peculiar fact that secondary vesical tuberculosis healed under the above conditions, whereas secondary ureteral tuberculosis manifested no such tendency. It is a good rule, therefore, to remove a tuberculous ureter at the time of the primary nephrectomy. He called attention to the pitiable state in which patients are often left after the tuberculosis of the bladder has healed. They have a contracted bladder holding from one-half to 1½ ounces; they must urinate every fifteen to twenty minutes, and are in consequence utterly unfitted for doing any work. Such a contracted bladder was especially likely to follow, if a suprapubic or perineal cystostomy had been previously performed. In the treatment of these miserable patients, who often look in the very best of health, we can do absolutely nothing, beside establishing a permanent bladder fistula. Attempts to distend the bladder usually fail to accomplish a lasting beneficial result. The patients are benefited for a time only; as soon as the local treatment is stopped, they relapse into their previous condition. These patients continue to be invalids. Regarding tuberculosis of the testicle he said that the experience of Dr. Blake was at variance with that of the best French and German observers. In a recent article in *Langenbeck's Archiv*, Vol. 70, Dr. W. Bogoljuboff showed experimentally that after partial and complete epididymectomy with implantation of the vas deferens into the remaining part of the epididymis or into the testicle, respectively, the spermatic channels of the rete testes communicated freely with the vas deferens. As to local recurrence after shelling out of tuberculosis areas in the epididymis or testes, he could recall two cases that had gone two years without such recurrence, the patients maintaining perfect health.

Dr. F. Tilden Brown said, in answer to Dr. Le Fevre, that so far as could be determined by a most careful examination, there was no other foci in the body. In the one particular case referred to the man had always considered himself healthy until after a swim in very cold water along the coast of Maine; he then noted a bloody tinge to the urine. With regard to suprapubic cystotomy for tuberculous lesions he said that the frequency with which permanent fistulæ followed these operations was due to the great carelessness in anticipating this possible complication, and in not making proper provision before the operation to treat the lesion actively when the suprapubic wound was made, treating the lesion with the sharp curette and cautery and other known therapeutic measures; and then to close the wound in layers providing only for little drainage in the prevesical space. He believed it to be a fallacy to leave the suprapubic wound to take care of itself, to heal or remain open, with the chance of becoming a source of great discomfort to the patient. He believed the surgeon should be prepared to know what he was going to encounter by doing a preliminary cystoscopic examination and then lay his plans for subsequent drainage; this may be had by continuous urethral drainage, or possibly perineal or vaginal. In cases of advanced contracted bladder every means should be taken to maintain a permanent suprapubic drainage until the end.

Dr. Joseph A. Blake said that he was glad to hear epididymectomy so unanimously recommended. When both sides were involved he endeavored to leave one testicle. Epididymectomy was not so good as castration for many cases in which the removal of the entire disease was important, and besides castration was a shorter operation. In regard to Dr. Eliot's case the chances of extension to the other side would have been much reduced if the vas deferens had been removed. Tuberculous disease should be treated in the same way as malignant disease, and if possible all the diseased structures should be removed; the vas deferens and seminal vesicle as well as the epididymis. In tuberculous glands of the neck, no one would think of removing one; the whole chain must be dissected out. Regarding the re-establishment of the continuity of the epididymis and vas deferens after epididymectomy, he could not believe, evidence to the contrary notwithstanding, that in a tube so slender that its twenty-two feet only occupied the bulk of the normal epididymis, that its lumen would not be occluded by the resulting scar tissue. For the same reason it was hard to believe that the vas could attach itself to the testicle. For these reasons he thought that the vas should be removed in all cases.

Dr. Ellsworth Eliot, Jr., said that it was a well-recognized fact that infection of the opposite testicle frequently followed even after castration. He took exception to the statement that if there was a tuberculous disease of one testicle the bacilli could (after ascending) go up the vas deferens, with or without evolvement of the seminal vesicles, bladder or prostate, travel in the opposite direction to the normal testes. If the other testicle was involved he said it was probably embolic. He referred to a recent article reviewing a series of experiments in which the writer had demonstrated that tubercle bacilli could not, in dogs, descend along the vas deferens to the testes, against the current of its secretion. He agreed with what was stated regarding excision of the epididymis, but excision of the vas deferens and the patient subsequently becoming the father of a child he doubted.

THE OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held November 5, 1903.

The President, J. M. Fisher, M.D., in the Chair.

Observations on Gynecological Surgery in the German Clinics.—This was Dr. Charles P. Noble's paper, and consisted of critical remarks upon the operative work seen in the clinics of Professors von Rosthorn of Heidelberg, Olshausen and Mackenrodt of

Berlin, Leopold of Dresden, and Dr. Amann of Munich. Especial attention was devoted to the radical operation for cancer of the uterus as performed in Germany. Von Rosthorn has been performing the operation which he calls the "der erweiterte Freund" for three years and a half, with increasingly good results, so far as the primary mortality is concerned. One operation was witnessed in which the connective tissue and glands of the pelvis were removed from the bifurcation of the iliac vessels to the bottom of the pelvis, leaving the oburator nerves running free across the pelvis. The operation was done without hemorrhage, and completed, including the suturing of the abdomen by the stage method, in one hour and five minutes. The other German advocates of the radical operation are Wertheim, Mackenrodt and Amann. It is clear that more tissue can be removed by the radical operation than by the usual operation for cancer of the uterus. The mechanical and anatomical difficulties are such, however, that tissue must be left about the ureter and attached to the bladder and to the rectum. The operation is too recent for legitimate conclusions to be drawn, except as to the primary mortality. If this can be brought within bounds, the analogy of cancer operations in other portions of the body, especially the breast, will influence surgeons to do the radical operation in the pelvis, at least until the question as to the relative permanent results to be obtained by it and the less extensive operations is finally determined. Dr. Noble stated that, following Clark, some years ago he had done the radical operation for a time, but had abandoned it because of its increased primary mortality. The operation, as done by von Rosthorn, however, showed a marked improvement in the technic, which permitted the operation to be done in about an hour, instead of in two hours or two hours and a half. The chief advocate in Germany of vaginal hysterectomy for cancer is Olshausen, who advocates vaginal hysterectomy for cancer on the ground that the primary mortality is lower, and that if the disease is limited to the uterus, the operation is curative. He opposes the radical operation on the ground that if the disease has advanced beyond the uterus, the case is hopeless, no matter what operation is employed. The operation for retrodisplacement of the uterus as performed by von Rosthorn is quite similar to the original operation as introduced by Olshausen, the technic consisting in opening the abdomen in the middle line above the pubes, seizing first one and then the other round ligament near the cornua of the uterus, and suturing it to the abdominal wall on each side of the abdominal incision near the pubes. Dr. Noble reported a uretero-cystostomy performed by Prof. Mackenrodt after his method. The entire operation is extraperitoneal. The case reported was one of unusual difficulty because the ureteral fistule followed a radical operation for cancer by the Mackenrodt technic, part of which consists in stripping the peritoneum away from the abdominal and pelvic walls; hence, in performing the operation upon the ureter, when the peritoneum was detached from the abdominal and pelvic walls, it was not the separation of its normal connective tissue attachment, but the separation of adhesions resulting from the previous operation. Nevertheless, and in spite of these added difficulties, the operation was quite feasible and very satisfactorily performed. A report was made on various plastic operations performed by Prof. von Rosthorn and by Drs. Kehrer, assistant in the Heidelberg Frauenklinik, and Henckel, assistant in the Berlin University Frauenklinik. Plastic work in Germany is by no means so well developed or so well performed as is the abdominal surgery.

Dr. Noble stated that his various visits to the German clinics in the last six years showed a very marked improvement from every standpoint. This improvement is not only true of the mechanical part of the technic, but also of the asepsis. A very substantial improvement has also been remarked in the character of the hospitals and operating rooms. The newer hospitals in Germany, of which that of Leopold in Dresden may be taken as a type, are models of their kind.

Dr. J. G. Clark said that Dr. Noble's observations on German gynecological surgery are especially interesting, because of his mature judgment, and therefore his capabilities as a just critic. It was very interesting to him to know that the abdominal surgery as now practiced by German gynecologists is so much better than it was six years ago, when Dr. Noble made his last visit to these clinics. At that time Dr. Clark made the rounds of the German and Austrian clinics, and his impressions were the same as Dr. Noble's relative to the comparative superiority of American gynecology over that generally observed in these countries. In extenuation, however, of this apparent inferiority, he would say that at that time the furor for vaginal hysterectomy, which had sprung up in Paris and had spread over to Germany and Austria, was in full sway, and by far more pelvic surgery was being done by the vaginal than by the abdominal route. Since then there has been a general tendency, not only in Paris, but also in Germany, to return to the abdominal incision as the best means of reaching the surgical field in the pelvis. He believes, therefore, that the marked improvement which Dr. Noble noted is due to this fact. A short time since the advocates of the abdominal methods were apparently in the minority in Germany, whereas at no time has been this the case in the United States. There has, therefore, been a steady and continuous improvement in our country, whereas there was a period of three or four years in Germany in which there was from the abdominal surgeon's viewpoint retrogression, rather than progress in this line. As to plastic operations, his observations at that time were in accord with those expressed by Dr. Noble. Without question, this class of work is universally better performed in the United States than in Germany, and Dr. Clark believes the credit is due first to Emmet, and second, to the many students of Emmet, and Sims, who have practised and improved upon the methods of their teachers. In his entire rounds of the German clinics he does not recall having seen a single Emmet operation performed, the Tait and Hegar, or some modification of these operations, being universally in vogue. As the principles of these operations unquestionably do not possess the well-grounded anatomical basis of the Emmet operation, it is not especially remarkable that the results among our German, Austrian and French colleagues are not so good as those following the Emmet operation. Relative to hysterectomy for cancer as performed by Von Rosthorn, Mackenrodt, Wertheim, Krönig and others, it goes without question that they are all based upon the original operation as performed first by William Alexander Freund, and are, therefore, as von Rosthorn designated them, merely extended or widened (erweitert) Freund's operation. Relative to Wertheims operation, which is so much alluded to in gynecological literature at present, he regretted to see that the work of Werder, of Pittsburg, was constantly ignored. Werder unquestionably published the accounts of his operations first, and his principles are essentially the same as those described by Wertheim. So far as calling attention to the metastasis of the pelvic lymph glands is concerned, however, he would give the greatest credit to Wertheim, for he is the first operator

to systematically study serial sections of suspected glands. He has especially emphasized the importance of a serial study of the glands, and he has shown that the early stages of metastasis may only be demonstrated in isolated portions of even a small lymph gland; therefore, to take one section of such a lymph gland and upon finding it free of carcinomatous cells to pronounce it free of metastasis, is a fallacy. When Dr. Clark began the study of this subject in 1892 and 1893 he was convinced of the analogy between carcinoma of the breast and that of the uterus relative to early metastases. A study of the lymph glands, however, which were removed in these early operations, seemed to show that they were occasionally the seat of metastases, which appeared to destroy this analogy. It may be said, however, that Ries insisted, from the time he first described his more extensive operations for cancer of the uterus, that there is this early metastasis, and therefore, Wertheim's extensive study confirms his frequently repeated assertion. Notwithstanding the fact that he always performs the radical operation for cancer of the uterus, he attaches less and less significance to the extensive removal of the lymph glands as a curative measure, for he believes that if the glands are once infected a recurrence is almost inevitable, let the operation be as radical as possible. For the last three or four years he has considered the removal of these glands as of prognostic rather than of curative value. In summarizing his opinion, therefore, of the extended Freund operation, as performed by Wertheim, Mackenrodt, Krönig, and Von Rosthorn, he would say that it is the operation of preference, but only in the hands of skilled abdominal surgeons. Only by carrying out fully and accurately the details of these operations will be discovered definitely its range of usefulness.

Dr. R. C. Morris said that Dr. Noble is to be congratulated for taking the Society with him to the places he visited, and he thinks it would be well if more men who regularly go to Europe would systematically note what they saw and when they came back give the societies such a review of their visit. He was more especially interested in the radical operations for carcinoma, and it seems that Dr. Noble had that in his mind particularly. He was most interested to learn the ultimate results of the aggressive and radical work for cancer of the uterus. Personally, he is doing less and less; it is only in the earliest cases that he now does either vaginal or abdominal hysterectomy. He believes, however, that the work described by Dr. Noble's paper will enable us to finally settle this question of the permanent value of hysterectomy for cancer.

Dr. A. J. Downes said that in the past three years he had also noticed a vast difference in the work of surgeons all through Europe. Three years ago while in Europe it appeared to him that American surgeons were wonderfully superior in their technic to anything he saw there. He noticed this year that new operating rooms were springing up all over Europe. Leopold's particularly impressed him. Landau, of Berlin, also has a new outfit, which is equal to anything one would find anywhere. He also visited Mackenrodt with a view of seeing his cancer operation, but was disappointed; however, he saw a patient that he had performed it on and in this case there was a very large recto-vaginal fistule high up, which he repaired. One thing that struck him in Germany was that there were two camps, one class of men who still persist in doing vaginal work, and another class who prefer to do abdominal work. He asked one man, he thinks it was Mackenrodt, the cause of this, whether it was due to the fact that they had been doing this for a long time and before it was possible to do such aseptic surgery as is done now. He remembered asking Kümmel in Hamburg the same question. He agreed that the men who early started to do vaginal work persist in it. He noticed one of the men who does a vast amount of vaginal surgery, when he did a fairly difficult operation for large fibroid through the abdominal incision, was not equal to control of hemorrhage anything like a man who usually does abdominal surgery.

Dr. Charles P. Noble, in closing, said that he was especially interested this year in trying to see what is being done with the radical operation for cancer of the uterus. When Dr. Clark first began doing this operation in this country he did it for a while. It took him two hours and sometimes longer. The primary mortality in his hands was not encouraging, so he gave it up. He was interested in the matter, because he wanted to see how other men managed it. If every case could be dealt with as beautifully as von Rosthorn's he believed we would all do it, because one can remove more tissue than by the ordinary methods of operation.

Paralysis of the Abdominal Sympathetic and Fecal Impaction Following Labor; also a Case in which Death from Hemorrhage Followed Premature Labor.—These were the themes of Dr. Edward P. Davis' paper. Paralysis of the abdominal sympathetic may be observed after delivery in cases where the fetus is unusually large, in polyhydramnios and in exhausted women; it may be associated with post-partum hemorrhage and the depressing effects of both lead to a fatal issue. The patient reported was a multipara pregnant for the second time, in whom paralysis of the abdominal sympathetic occurred after the delivery of a normal fetus when hemorrhage was absent and where the mother was apparently not exhausted. The great abdominal distention, the patient's very rapid and feeble pulse, the tension in the intestine, the temperature, the continuance of normal lochia and the final recovery of the patient identify the condition as one of vasomotor paralysis, accompanying toxemia of intestinal origin.

Case II.—The woman was twenty-three years of age and in her third pregnancy. Her previous labors had been spontaneous, but were long and severe. She was markedly anemic. For six weeks she had daily bleeding. She was seven months pregnant upon admission to the Jefferson Maternity and remained in bed until the termination of labor, ten weeks later. There was no evidence of placenta previa. Hemorrhage ceased when she was put to bed. When labor occurred there was delay through inertia, complete dilatation was secured artificially and a living child delivered by forceps. The mother made a good recovery and left the hospital with her child in fairly good condition. About eighteen months afterward this woman was again admitted to the Maternity, five months pregnant, and she had had severe hemorrhages. The patient was soon delivered, and did well for a week when hemorrhage recurred. The uterine cavity was carefully explored, found empty, and was packed with iodoform gauze. The hemorrhage ceased, to recur a week later, and controlled in the same way. Two weeks later another severe hemorrhage occurred which was also controlled by gauze packing. The patient died two weeks subsequently of exhaustion following a return of the hemorrhage. In the absence of a history of hemophilia and placenta previa, it is difficult to find an adequate explanation for the hemorrhage. Scyntioma malignum presents itself as a possible and even probable explanation, and a more complete autopsy might have given evidence of its presence. There was no fibroid growth present in the uterus, nor was there any other lesion of the pelvic organ. No measure, except compression

by gauze, seemed to influence the bleeding. At no time did the patient's condition justify hysterectomy.

Dr. R. C. Norris said that both the cases that Dr. Davis reported are of great interest, and as he was reporting them Dr. Norris cast about in his mind to recall analogous cases. In the first place he should like to speak of the question of fecal impaction and fecal toxemia following labor. It has been his fortune to be worried on several occasions over his patients in the Preston Retreat by finding an elevation of temperature, which, however, would rapidly disappear after the free administration of purgatives and high enemas, enormous quantities of fecal matter being discharged. In hospital practice it is by no means uncommon, but on the contrary, quite common, for pregnant women to have stored up in them large accumulations of fecal matter with greater or less degree of toxemia. He recalls particularly a case of enormous abdominal distention, and some of the gentlemen here may recall this also. He was requested by telephone message to admit to the Preston Retreat a case of extra-uterine pregnancy. The doctor in attendance the preceding day had attended the woman in labor at full term, and had delivered her of a child through the natural passages, and then discovered an extra-uterine gestation. While in transit to the hospital all preparations were there made for an abdominal section, but upon arrival she was so ill (enormously distended, and with a pulse about 140, temperature 104° F.), and not being able to palpate her abdomen and locate the extra-uterine mass, it seemed wise to attempt to purge her and to wait until the following morning. From a necessarily superficial examination of her abdomen, on account of the enormous distention, he could find nothing abnormal indicating an extra-uterine fetus. Effort failed that night to get any movement. There was fecal vomiting. Next morning all the preparations for abdominal section were made, and several physicians were present to witness this extraordinary case. After administration of an anesthetic it was possible to palpate her abdomen, and it was learned definitely that there was no extra-uterine fetus; that there was a fecal mass apparently plugging the bowel, and under the anesthetic this enormous accumulation of flatus diminished, and with free purgation later disappeared; and, in the course of a week the patient was convalescent and went home. Of course, no operation was done. Enormous quantities of fecal matter were obtained by high enemas given to the patient in the Trendelenburg posture. He found in that case, as he had in others of distention following labor, that the use of a many-tailed bandage is a great comfort to the patient, and of very great importance to assist in the elimination of the flatus. The high enema of milk of asafetida with a many-tailed bandage seemed to do more good than any other medication. This was the most extreme case he had ever seen. He remembers seeing with Dr. Boyd in the wards of the Lying-in Charity, a case of enormous distention—one could see the coils of intestine through the over-distended abdominal wall. In one of his cases he found it necessary to open the abdomen and puncture the intestines to let out the gas. He believes that patient's life was saved by this measure. This was the only occasion on which it appeared desirable or necessary to resort to so heroic treatment. The case he has referred to to-night will be reported in detail in the report of his work at Preston Retreat. He wished to impress the fact that the fecal accumulation, with distention and temporary fever, particularly in hospital cases, is really a very common condition, so much so that his head nurse, who has seen over 3,000 confinement cases in the Retreat, rigidly enforces his rule that all waiting patients are to be daily purged freely with salts and licorice powder to prevent fecal accumulation and fecal intoxication. He has also a case in mind, not wholly analogous to Dr. Davis' case of hemorrhage. The patient had the tendency to bleed during pregnancy and when she came under his care was exceedingly pale from anemia. She had profuse hemorrhage forty-eight hours after her labor, and in spite of a gauze plug, she kept oozing a clear serum. The nurse thought she was passing urine involuntarily, so little colored blood did she appear to have in her body. Dr. Allen found she had only 15 per cent. of hemoglobin. This case also will be reported in detail in the forthcoming report of work in the Preston Retreat. All means of stimulation were tried, and the more salt solution given, the more she simply wet the bed apparently. There appeared to be no ability on the part of her blood to coagulate. The patient finally died of enemia. He concluded that there was a failure of clotting in the uterine sinuses through the character of the blood itself. If he should ever meet a similar case he should use adrenalin. It seems to be one of the newer drugs that may prove useful in that kind of bleeding following labor. Dr. Davis' case certainly suggests malignant disease. In Dr. Norris' experience the cases of hemorrhage are very rare, the cases of fecal impaction and of abdominal distention are not uncommon. The cases of enormous abdominal distention with apparent nerve paralysis are certainly very rare.

Dr. Charles P. Noble said he had seen a number of cases somewhat similar to Dr. Davis' case of fecal impaction. It is always a question in these cases whether the bowel paralysis is primary or influenced by fecal impaction. He thinks fecal impaction is the primary trouble. It so happens that he also saw the case alluded to by Dr. Norris in the Lying-in Charity. He remembers the distended bowels which one could feel through the abdominal wall. The woman had the ordinary symptoms of obstruction. His recollection is that an abdominal section was done and nothing at all found. In abdominal work he has frequently had these cases of fecal impaction with toxemia, and he thinks that not only is it very important in treating these cases to irrigate the colon, but it is also very important to wash out the stomach. A great many of these patients die from absorption from the stomach. He once opened the abdomen, supposing that the patient had an obstruction with distended bowels. When he opened the abdomen he discovered the entire distention was due to a very full stomach. While the woman was on the table a stomach tube was introduced, and the abdominal distention disappeared into the bucket. Since that very striking case he has always dealt with these cases by washing out the stomach as well as the bowel. By the stomach tube we can far more surely introduce cathartics than in the ordinary way. As a rule it is useless to give cathartics; they simply cause vomiting and are useless. By first washing out the stomach, and using salts or some other cathartic we are usually able to get good results.

Dr. Stricker Coles said in regard to the second case Dr. Davis reports, that of hemorrhage, when he first saw this patient she was ten or twelve weeks pregnant. He had never seen as much blood lost and the patient still go on with pregnancy. He told her she had lost the embryo. On making examination the uterus seemed much smaller than it had been when he had examined her two weeks before. She was in bed from this hemorrhage for some little time. He gave her a rectal injection of a large amount of salt solution. She was almost pulseless at the wrist when he saw her. He had been late in getting to her. She recovered from that and came down to see him about three weeks later,

making about the sixteenth week of gestation. He found that she was still pregnant, and she went on with the pregnancy, having slight hemorrhages off and on. When she came into the Maternity she was in a fair condition, and her delivery was accomplished with ease. There was no hemorrhage after it and she was making an apparent perfect recovery when the first hemorrhage occurred about ten or twelve days afterward, and this hemorrhage came on without apparent cause. The woman was seemingly nearly well enough to get out of bed, and this hemorrhage was so easily controlled by packing that she revived speedily. The hemorrhage was profuse while it was short, and she would probably have bled to death had it not been promptly controlled. We packed the uterus on these occasions and could find nothing apparently out of the way.

Remarks on Cæsarean Section.—This was the subject of Dr. G. M. Boyd, who said that during the past seven years in treating dystochia due to pelvic deformity, he had found it necessary to resort to Cæsarean section in eleven cases. Eight of these cases were operated upon prior to 1903, and have already been reported. Of the three patients operated upon this year, one had a generally contracted pelvis and a true conjugate of 8 cm.; another a generally contracted rachitic pelvis, with a true conjugate of 7.5 cm.; and the other a rachitic pelvis with a true conjugate of 7.5 cm. A living baby was secured in each case, and the mother made a good recovery. Celiohysterotomy was the operation of choice in each case. Of the entire series of eleven cases, with the exception of one dead child, the list is without a mortality. One patient had lost one child; two patients had lost two children; one patient had lost six children. There were three repeated Cæsarean sections; in four patients the elective operation was performed; in seven there was the test of labor; in all the elective cases there was a history of one or more labors, ending disastrously to the child.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, held December 1, 1903.

The President, Pearce Bailey, M.D., in the Chair.

Case of Brain Tumor with Autopsy.—Dr. William M. Leszynsky reported this case. The patient was a girl aged nineteen years, a stenographer and typewriter by occupation. She was admitted to the Eye and Ear Hospital on January 12, 1903, and was seen in consultation with Dr. H. Jarecky. She was totally blind as a result of intense papillitis. The eyeballs were slightly prominent and rigid. She had never indulged in alcoholics, but had used tea excessively. Nine months ago she had begun to suffer from unusually severe occipital headaches, generally at night while asleep. The more severe attacks were accompanied by vomiting. There had also been severe attacks of vertigo. Two months previously she suddenly became blind in the right eye, and one month later the left eye became similarly affected. She remained in the hospital about two months, during which time she complained of frequent and severe headache in the right temporal and parietal regions, associated with tonic left facial spasm. Involuntary urination occurred from time to time. There was a slight paresis of the left facial distribution. The left knee-jerk was more pronounced than the right, but ankle clonus was absent. The urine was negative. The pulse was about 78. She received a thorough course of iodide of potassium and mercurial inunction without improvement. His diagnosis was cerebral tumor involving the right hemisphere. She was admitted to his service at Lebanon Hospital on March 7, but would not consent to an exploratory operation. She could not recognize by touch any familiar object with the left hand. The convulsive attacks gradually increased in frequency, there being later clonic movements of the face, and nystagmus with retraction of the head. On May 18 there were several attacks of sudden vertigo associated with tonic and clonic spasm of the left side of the face and left arm and leg. Toward the end of May, in addition to a pronounced facial paralysis, the orbicularis palpebrarum became decidedly paretic a few weeks later. The Babinski reflex was exquisitely demonstrable on both sides. During her stay in the hospital the pulse varied between 98 and 100, the respirations were 24 and the temperature 98° to 99° F. On May 30 she was admitted to the Presbyterian Hospital to the service of Dr. McCosh for operation. On June 6, while conversing with Dr. Leszynsky, she suddenly became unconscious, and the limbs were rigidly extended. Both eyes were closed, the face was pale, and the pulse was regular. There were no clonic movements. After about three minutes there was complete muscular relaxation, and rapid and almost abrupt return to consciousness. On June 9, Dr. Starr concurred in the diagnosis and thought there might be multiple lesions. Two radiographs were made, one anteroposteriorly, and the other laterally. The operation was done on June 11, 1903, under chloroform, a flap being raised over the fissure of Rolando. The intracranial pressure was found to be markedly increased. At the depth of an inch and a half, in the direction of the right lateral ventricle, cerebrospinal fluid was reached. No tumor formation was discovered. A silkworm-gut drain was inserted, and after operation between one and two pints of this fluid drained away each day. Following the operation there was, for a short time, a complete left hemiplegia with rigidity. She died on July 8 from lobar pneumonia, four weeks after the operation and seventeen months after the symptoms of brain disease. The autopsy was made fifteen hours after death by Dr. George A. Tuttle. The examination was limited to the brain and its contents. The brain tissue in the region of the operation was quite soft. A soft red mass was found in the right ventricle, about the size of an egg, which apparently sprang from the inner wall of the ventricle. The tumor was thought to be a glioma. There were two organized blood clots in the ventricle. Macroscopically, all the other portions of the brain and meninges appeared to be normal.

Dr. J. F. Terriberry said that he had seen this case at the Manhattan Eye and Ear Hospital. The astereognosis was one of the most prominent symptoms at that time. The young woman had spasmodic contractions of the face muscles, first on one side and then on the other. The importance of the astereognosis as a localizing symptom had been forcibly impressed upon him by this case. If these symptoms coming from the basic area of the brain had occurred earlier, they might have led to an erroneous diagnosis.

Dr. George W. Jacoby said that the most interesting part of the report to him was the demonstration of the X-ray plates. In the skiagraphy of tumors of the brain we possessed a very valuable adjunct, but we should insist upon more precision in the description of these examinations. Over a year ago he had exhibited to this Society two skiagraphs of a case of tumor of the brain, taken during life. The patient was subsequently operated upon, and the tumor removed, and the patient lived five months longer. This case proved the feasibility of obtaining skiagraphs of practical value in these cases of tumor of the brain. Oppenheimer's experiments in this direction were very interesting. He had experimented with a hardened tumor in the brain and with a hardened tumor within the skull, and had succeeded admirably, but had failed on attempting to photograph

brain tumors during life. Dr. Jacoby said that he had repeated these experiments, and had discovered that when soft or fresh tumors were used the result was not successful. Since that time he had made many clinical examinations on supposed brain tumors without obtaining a single positive result until the one presented by him a year ago. This experience showed that one should work with a known tube and with a known exposure to determine what would give a complete transillumination of the skull. Having done this, the minimum exposure should be used, say 7½ or 8 minutes, and then each successive exposure should be made a little longer. In his own successful case exposures of 10½ and 11½ minutes, respectively, were successful, whereas longer and shorter exposures led to failure. It had been thought by some observers that the result would only be successful with a thin skull and a hard tumor, but in his own case the bones of the skull were thick and the tumor friable.

Dr. Leszynsky said that within the last two months he had examined two patients who undoubtedly had brain tumors, which could not at the time be accurately localized. In each case there was astereognosis present on one side, yet when seen again the astereognosis had disappeared. These patients were examined a great many times, and it had been noted that the astercognosis was very variable, being present at one time and absent, perhaps, half an hour later.

Is Epilepsy a Functional Disease?—Dr. M. Allen Starr was the author of this paper. He said that he had come to the conclusion that epilepsy was an organic disease, and this opinion was based upon a personal study of two thousand cases of epilepsy of which he had satisfactory records. The recognition of Jacksonian epilepsy of several different types was now universal. This form was admitted to be a symptom of organic disease, though the nature of the latter might vary considerably. The character of the attack was uniform because the disease produced a uniform kind of irritation. In 38 per cent. of his cases of ordinary epilepsy the attack was preceded by an aura, which was identical in many cases with the sensation starting a Jacksonian attack; the only difference between a Jacksonian attack of the motor type and the idiopathic form was in the extent of the spasm. The Jacksonian attack might run into a general motor spasm, showing that there was no essential difference between the two. The same might be said of the sensory attack. In many cases the fit began with a cry, a discharge from the motor speech center. If the Jacksonian attack became severe and widespread, consciousness was apt to be lost. The close resemblance in 23 per cent. of his cases between Jacksonian and ordinary epilepsy seemed to him to offer an argument that, in these cases at least, the ordinary type of epilepsy was due to organic lesions. Another argument in support of his proposition was found in a study of cases of maldevelopment of the brain. Of 400 of such cases, elsewhere analyzed, 156, or 39 per cent., were subjects of epilepsy. It was not uncommon to suppose a child to be suffering from epilepsy only, and yet careful inquiry showed a previous apoplexy. Among his two thousand cases of epilepsy, 192 showed positive signs of maldevelopment of the brain. Of his cases of epilepsy, 68 per cent. developed before twenty years of age; in other words, during the period of brain development. The speaker maintained that many cases of idiopathic epilepsy were actually cases of maldevelopment of the brain, and that the epilepsy was the manifestation of this organic disease. The incurability of epilepsy afforded another argument for the organic nature of this disease. There was no question that proper care and treatment could reduce the frequency and sometimes mitigate the severity of the attacks. He had come to the conclusion that the surgical treatment of epilepsy by exposing the brain and removing irritating foci, offered as little hope for cure as did medical treatment. He had records of about fifty cases of Jacksonian epilepsy treated by trephining, and he had yet to see a case in which such operative treatment had been followed by a permanently satisfactory result. Another argument for the organic basis of epilepsy might be found in the alleged causes of the disease. The first of these was heredity; the second in frequency was trauma of the head. That trauma of the head was a more potent cause than trauma elsewhere was well shown by the statistics of the Franco-Prussian war. These showed that out of 8,895 wounded in the head, 46 became epileptic, whereas out of 77,463 persons wounded elsewhere only 17 became epileptic. The epilepsies of advanced life could almost invariably be traced to endarteritis and atheroma. Fright was undoubtedly a cause of this disease, as 119 of his patients had the first fit after a severe fright. One great stumbling block to the adoption of the theory of the organic origin of epilepsy was the multiplicity of causes enumerated by pathologists. The epileptic attack was the symptom, not a disease; the disease was a disorder of control. It seemed to him far more reasonable to admit that epilepsy was an organic disease of the brain characterized by a lack of control of the mechanisms over motor energy. If we adopted this rule, we would more readily admit that it was incurable, and would be more willing to aid in the establishment of colonies for epileptics.

Dr. C. L. Dana said that he was surprised that the author apparently assumed that we did not believe that epilepsy was an organic disease. At least ten years ago, the speaker said, he had spoken of epilepsy as a progressive degenerative disease of the brain, but as we did not yet know always what was this degeneration, or where it was, and could not give a morphological description of the diseased cells, it was probably wise to still describe epilepsy among diseases without definite organic basis. He also doubted if the term disease was the proper one to use in connection with epilepsy. There was certainly an underlying organic degeneration, but it seemed to him that in many cases it was rather a morbid condition than a disease process—rather a teratological defect than an actual disease. So far as we knew now it was probable that the most important factor underlying epilepsy was the tendency of large groups of nerve cells to undergo a rather progressive degenerative process. With regard to the argument about Jacksonian epilepsy, he would say that the author's statements were not strictly correct. Some forms of Jacksonian epilepsy were as much without known organic basis as ordinary idiopathic epilepsy. He had had a case of Jacksonian epilepsy with classical convulsions confined to one arm and one side of the face, lasting for years, and after death a modern autopsy gave absolutely negative results. With regard to the incurability of epilepsy he would say that the stand taken by Starr seemed to him not only incorrect, but disheartening and unfortunate. He absolutely knew of cases in which epilepsy had been cured. He knew personally of a young man who, at the age of seventeen, had nocturnal epilepsy for one or two years, the attacks coming as often as two or three times a month. He had seen the attacks himself, and they were perfectly characteristic. Under the bromide treatment this man recovered, and was now forty-five years of age, and had never had an attack since. There were now none of the interconvulsive symptoms of epilepsy, and this disease should be looked upon as cured just as much as a pneumonia might be considered cured. He had another patient who had been well for twenty years, and another for fifteen years. The very theory of the disease, assuming

it to be organic, would make a cure possible. We knew perfectly well that there were certain degenerative processes that we could arrest; for example, tabes and degenerative processes affecting the kidneys or liver, for degenerative processes were not always progressive.

Dr. L. Pierce Clark said that Dr. Dana's statement about the curability of epilepsy had interested him, because, in an experience of ten years with epilepsy, he had records of at least two or three dozen who had remained free from epileptic attacks for periods varying from eight to twenty years. It was true that they might run eighteen or twenty years and recur again, but in such cases he would look upon them as practically cured, although the original condition might still persist. He agreed with Dr. Starr that idiopathic disease had an organic basis. He did not believe that the mere existence of an organic disease of the brain was sufficient to account even for the epilepsies of the Jacksonian type. He believed that perversions of nutrition or toxic agents were potent factors.

Dr. William Hirsch asked Dr. Starr for a definition of what he called organic or functional. From a strictly biological point of view, he thought, we could not make such a distinction between organic and functional. That a disease was organic did not by any means justify us in calling it incurable. When one made a diagnosis of paranoia, one knew that it was an incurable disease, and yet it was classified all over the world as a functional disease, because no one had as yet detected any organic changes in the central nervous system. The fact that Jacksonian epilepsy was frequently due to organic changes, which we recognized as such, did not prove that general epilepsy must have a change analogous to that of Jacksonian epilepsy. As Dr. Dana had pointed out, there were cases presenting quite characteristic attacks of Jacksonian epilepsy. He had in mind cases of general paresis, and particularly one case, in which death had been preceded by a very large number of these attacks, yet a careful autopsy on this patient was absolutely negative. On the other hand, there were cases of organic disease, tumors of the brain and arteriosclerosis in which epileptiform attacks never took place. We were all familiar with eclamptic attacks, attacks due to poisoning, and dependent upon transitory changes in the brain. It was manifest that all cases of epilepsy could not be said to have an organic basis.

Dr. William H. Thomson said that the function of a lamp was to give light, and for that purpose its structure might be a glass globe, a wick and a reservoir of oil. If any portion of that structure were damaged it might interfere with its light-giving function, but this same function could be entirely abolished without in any way interfering with its mechanism, *i.e.*, by supplying it with water or poor oil. Similarly, he conceived functional nervous diseases as truly derangements of the source of nerve function, independent altogether of the structure of the brain, *i.e.*, the blood. Functional disease might be so serious as to terminate life, and yet no nerve cell or fiber could be demonstrated to be diseased, the disorder perhaps having been entirely due to a toxin in the blood. He could not believe that a disease characterized so strikingly clinically by intermittency as was epilepsy could consist essentially in a structural lesion, nutritive or otherwise. He fully agreed with Dr. Starr that epilepsy was not curable by the surgeon, and, indeed, that a surgical operation upon the brain was apt to be followed by epilepsy. A polypus of the nose sometimes gave rise to an intermittent nervous trouble, asthma. He had had a number of cases in which the removal of a peripheral source of irritation had been followed by a permanent disappearance of epilepsy. With regard to the true pathology of epilepsy, we were often misled in regarding epilepsy as due to a discharge in the cerebral cortex. This notion he could not reconcile with the fact that every efferent impulse was always secondary to an impulse from the afferent side. His definition of epilepsy was "a *sudden* derangement of the normal inhibition of cortical centers upon one another, dependent, in the first instance, upon an abnormal afferent impression." The majority of cases of epilepsy he believed to be the result of toxemia. That epilepsy, with such widely varying manifestations, should be dependent upon one organic disease of the brain, he could not believe.

Dr. S. F. Hallock thought if we carefully investigated the psychical side in the early history of many cases of epilepsy we would obtain a strong argument for the organic origin of the disease.

Dr. Joseph Collins said that he personally felt no urgency in putting epilepsy into the camp of organic diseases, neither did he think Dr. Starr had presented any reasons for such urgency. That we might find epilepsy to be an organic disease he hoped, and he also hoped that if such discovery were made we would find the means of coping with this disease; yet Dr. Starr seemed to take a hopelessly antagonistic view on this point. Personally, he had never been taught to look upon Jacksonian epilepsy as an organic disease, the point upon which Dr. Starr seemed to found his main argument. He supposed that about 25 per cent. of the cases of idiopathic epilepsy presented Jacksonian attacks, but this phenomenon he looked upon as only an indication that the irritation proceeded from a certain portion of the brain. He understood this was Hughlings Jackson's view. He knew of no organic disease which came on in the first decennium of life, and continued practically for the full natural term of life; in other words, a disease that did not cut life short. He did not know of any cases of epilepsy which had been studied in the intervals of the attack, except where the observations had been interfered with by medicinal treatment to such an extent as to render these observations of no value. It had been stated this evening by several persons that changes in the brain in epilepsy had been found with a certain degree of constancy by well-recognized neuropathologists. He would say that these changes were not to be compared in any way with those which occurred in the cell bodies of the neurons in a case of poisoning by bromide of potassium, administered accidentally to a patient in Toronto a year or two ago. He thought Dr. Starr must be persuaded to modify his statement regarding the incurability of epilepsy before the publication of his paper, because it would otherwise give rise to an almost immeasurable amount of despair. He did not think there was any real justification for such pessimism. Personally, he knew that cases of epilepsy did get well, or at least practically so, and he believed we were already able to cope with epilepsy with fair success.

Dr. Thomas Prout said that he had studied a good deal of pathological material sent him from the Craig Colony by Dr. L. Pierce Clark. The cases dying in status epilepticus presented a uniform lesion of the cortex. In ordinary idiopathic epilepsies he found the same lesion in the cells of the cerebral cortex, but in lesser degree, and he looked upon these changes as characteristic of epilepsy. A case reported by Wright had attracted considerable attention, but this observer's methods were exceedingly faulty. The autopsy in his reported case was made fourteen hours after death, and the body temperature was 108° F.

Dr. Adolf Meyer asked Dr. Starr what attitude he took concerning the fact that he founded his conclusions upon the occurrence of focal symptoms in such a large number of cases of epilepsy. What would he say with regard to the fact that the removal of such lesions failed

to cure the epilepsy. The word organic as commonly used implied something far more serious than the disease as described by Dr. Starr. The persistence of the epilepsy after the removal of the organic lesion would seem to indicate that there was a general disorder present.

Dr. W. M. Leszynsky said that after a number of years of clinical experience he certainly disagreed with Dr. Starr in his pessimistic views as to the curability of epilepsy. It could hardly be doubted that a certan proportion of the cases of idiopathic epilepsy were cured. Reference was made to two cases in which the patients had promptly improved, and had been practically free from epileptic attacks for several years after the bromides had been discontinued, and proper attention had been given to the general health.

Dr. Max G. Schlapp said that it should not be forgotton that epileptiform convulsions could he produced by many different things; hence, to take a symptom or a group of symptoms and dignify them with the title "organic disease," seemed to him to be going too far. We knew that in children convulsions could be brought on easily by slight irritation of the peripheral nervous system, and to say that these convulsions were produced by an organic lesion in the central nervous system was not justified by the transitory nature of these symptoms. The difference between a Jacksonian epilepsy and an ordinary epilepsy was perhaps to be found in the position of the lesion. If the irritation were beyond the motor center it was possible that the irritation would spread throughout the cortex, giving rise to unconsciousness and various central disturbances. The lesions described by Dr. Prout as occurring in epilepsy were found in other conditions. The principal lesions found, according to the Nessl method, were chromatolysis, and might be present in connection with various forms of poisoning.

Dr. Edward D. Fisher said that he had long believed epilepsy was an organic disease. The fact that we could produce convulsions similar to what we understood as epilepsy, did not necessarily mean that they were really epileptic. The characteristic of epilepsy was its persistence; it was the general mental state as well as the convulsion which constituted epilepsy. We should sharply distinguish between idiopathic epilepsy and epilepsy due to any other non-irritating cause. He did not think Dr. Starr meant to give any definite pathology for epilepsy, but merely to state that it was an organic disease. He could not agree entirely with him, however, regarding the incurability of epilepsy, although he would admit that it probably was the most nearly incurable disease known. He could not conceive of a disease which went on year after year with exactly the same symptoms as at the beginning, without there being back of it an organic lesion.

Dr. Starr closed the discussion. He said he was exceedingly obliged to the society for its full and free discussion of this important topic. He was willing that his statements about the incurability of epilepsy should not be published; nevertheless, he believed, with Dr. Fisher, that epilepsy was one of the most incurable diseases we were called upon to treat. It was true that the various speakers had spoken of one or two recoveries, yet those present must have seen hundreds of cases of epilepsy. He thought this substantiated fully the position he had taken with regard to the general incurability of epilepsy. He had had no idea of establishing a pathology for epilepsy. He certainly regarded, and believed most neurologists regarded, the Jacksonian cases as organic. The same sources of irritation which gave rise to epileptic attacks were present constantly in other individuals, and hence, there was something else in epileptics. He believed in epileptic persons there was, in addition to the toxemia, some underlying defect, as Dr. Dana had said. It was certainly very important to study epileptics in the intervals of the attacks, and when not under medicinal treatment; he had done this frequently, and believed it was being constantly done by others.

CORRESPONDENCE.

A MEETING IN BALTIMORE TO DISCUSS THE TUBERCULOSIS CONGRESS SITUATION.

To the Editor of the MEDICAL NEWS:

On January 28, 1904, at 8.15 P.M., there will be held in Baltimore, at McCoy Hall of the Johns Hopkins University, under the auspices of the Maryland Tuberculosis Commission, an informal meeting of American physicians and hygienists interested in the tuberculosis problem of this country. The object of the meeting will be to form a national committee to represent the American medical profession at the International Congress on Tuberculosis to be held in Paris in 1905. There will also be a free discussion of the announced Congress on Tuberculosis in St. Louis under the leadership of Mr. Clark Bell, and the other tuberculosis congress to be held in Washington in 1905 under the leadership of Dr. Daniel Lewis, or as it is now called "The American Anti-Tuberculosis League." It is to be hoped that the deliberations at this meeting will result in an understanding between all parties concerned, and that all individualism and partisanship will be supplanted by true love to humanity, by genuine scientific and practical methods, and by the highest professional motives. If it is the unanimous opinion of the medical profession that there should be an American Congress on Tuberculosis previous to the one which is to meet in Paris next year, it should be thoroughly representative and an honor to the American medical profession.

Professor Wm. H. Welch of Johns Hopkins has kindly consented to preside. All communications relating to this meeting should be addressed to the Secretary *pro tem*, Dr. H. Barton Jacobs, 11 Mount Vernon Place, Baltimore, Md.

[Those of the readers of the MEDICAL NEWS who are not yet familiar with the present tuberculosis congress situation in America we beg leave to refer to an open letter by Dr. S. A. Knopf of this city, entitled "American and International Tuberculosis Congresses and Tuberculosis Exhibits for the years 1904 and 1905," which appeared in the NEWS of December 5, 1903.—ED.]

BOOK REVIEWS.

A TEXT-BOOK OF OPERATIVE SURGERY. Covering the Surgical Anatomy and Operative Technic Involved in the Operations of General Surgery. Written for Students and Practitioners. By WARREN STONE BICKHAM, Phar. M., M.D., Assistant Instructor in Operative Surgery, College of Physicians and Surgeons, New York; Late Visiting Surgeon to Charity Hospital, New Orleans, etc. Octavo, 984 pages, with 559 illustrations, entirely original. W. B. Saunders & Co., New York, Philadelphia and London.

THIS is undoubtedly one of the important books of the year and both its author and publisher are to be congratulated on its appearance. A large meed of praise is due, however, to Miss Eleanora Fry, who drew all of the extremely numerous illustrations. The value of books of this sort depends largely on the character of the illustrations, for one glance at a skilfully pre-

pared drawing will do more toward refreshing the memory or making clear an unfamiliar form of technic, as an intestinal suture, for example, than the perusal of pages of letter press. In this instance the artist's work has been done with unusual care and the result has been signally successful.

Even the very few borrowed pictures have been entirely redrawn and brought into harmony with the others, so that the entire series is uniform and gives an impression of homogeneity very different from the usual indiscriminate hodge-podge of cuts, where all epochs of surgical development and degrees of draughtsmanship are huddled side by side. The text, however, is fully worthy of all the artistic embellishment possible and is arranged with a system, an economy of verbiage and a clearness of expression that leaves nothing to be desired. It is fully modern in all its phases and the author's experience in Tulane University has enabled him to describe numerous procedures not commonly practiced in this part of the country. Among these are several of the ingenious devices of Matas, a surgeon whose work is not as well known in the North as it should be. Pfannenstiel's suprapubic incision is described, for the first time, we believe, in an American text-book, but we think that Crile's method of clamping the carotids during neck operations might be included in the section on "Temporary Ligation of Arteries" and we miss an account of the Connell-Turk modification of the Maunsell suture of the intestine. The mechanical make-up of the volume is in keeping with the text and adds its part to the production of what is without doubt the finest single volume operative surgery we at present possess.

A Text-book of the Diseases of Women. By Thomas A. Ashby, M.D., Professor of Diseases of Women in the University of Maryland; Consulting Gynecologist to the Mount Hope Asylum, etc. With 233 illustrations. Williams & Wilkins Company, Baltimore.

The only criticism that can be raised against this volume is that it comes into a field already crowded, without any very evident reason for its existence. It is a well put together, well-arranged, and, for the most part, well-illustrated book, which covers its field adequately and presents its subject-matter in a way attractive for students and authoritative for older men. The description and plates of Connell and Turk's modification of Maunsell method of end-to-end anastomosis of the intestine here makes its first appearance, we believe, in a text-book.

A Text-book of Clinical Anatomy. For Students and Practitioners. By Daniel N. Eisendrath, A.B., M.D., Clinical Professor of Anatomy in the Medical Department of the University of Illinois (College of Physicians and Surgeons); Attending Surgeon to the Cook County Hospital, Chicago, etc. Octavo, 515 pages. Illustrated with 153 illustrations, a number in colors. W. B. Saunders & Co., New York, Philadelphia and London.

The teaching of anatomy as usually done in our medical schools is deficient in that it is not sufficiently topographical in its nature. In taking up the bones, vascular system, muscles, etc., in groups, and considering them in this, the customary way, the student loses sight of all perspective and does not sufficiently correlate the knowledge he has been acquiring in sections. It is this defect the author has endeavored to bridge over by making his discussion of the subject purely regional, together with a completely new set of illustrations. These consist of photographs of living models on whom the various structures, superficial and deep, of medical and surgical importance are traced in their relations to each other, and the surface landmarks. The idea is excellently carried out and the text is equally original, so that the subject is given a freshness and interest likely to make it attractive both to the student and graduate.

Surgical Diseases of the Abdomen, With Special Reference to Diagnosis. By Richard Douglas, M.D., formerly Professor of Gynecology and Abdominal Surgery, Medical Department, Vanderbilt University, Nashville; Ex-President of the Southern Surgical and Gynecological Association, etc. P. Blakiston's Son & Co., Philadelphia.

In this eminently scientific work the physical diagnosis of abdominal conditions is discussed with an elaborateness probably never before attempted. But little attention is paid to operative technic or methods, the proper surgical procedure in each case being simply indicated, though occasional discussions on open questions involving the operative treatment and after-management are interpolated. The entire domain of the abdomen is covered in about one hundred sections devoted to the diseases and injuries of the various organs which in every case embody thoroughly modern and thoughtful views of the subjects in question. Gynecological conditions whose manifestations are chiefly abdominal are discussed with the exception of inflammatory lesions of the tubes, the rationale of which omission is not apparent. The various forms of internal herniæ receive adequate treatment, but the subject of strangulation of external herniæ, which also would seem to fall within the limits of a work on abdominal diagnosis is not elaborated.

The plates are well chosen and of an order of execution comporting well with the entire tone of the work, which both scholastically and mechanically is of the highest rank. It is essentially the outcome of the great advances which abdominal surgery has made within the past decade, and should command the attention of the profession everywhere.

A Text-book of Diseases of Women. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Howard, the Orthopedic, and the Philadelphia Hospitals. 8vo, 675 pages. Illustrated with 650 original illustrations, many in colors. W. B. Saunders & Co., New York, Philadelphia and London.

The appearance of this book will be welcomed by those who are familiar with the author's writings on obstetrics. In many respects, particularly in the number and beauty of the illustrations, it is a companion volume to the Text-book of Obstetrics. The same breadth of scope and thoroughness of treatment are present to a notable degree, and an agreeable style enlivened by many citations of personal experiences makes it enjoyable reading. An especially commendable feature is the unusually large number of illustrations devoted to microphotographs of pathological specimens, which are so clearly described as to be of real value. Office treatment is given a due amount of consideration, so that the work will be as useful to the non-operator as to the specialist, while the latter will find abundant food for thought in the section devoted to operative technic. Many innovations are contained in this, such as a new method of etherization, the use of Downe's electro-hemostatic clamps, a new method of employing rubber dam as a covering for the patient's abdomen during laparotomies, etc. In short, the book is an important addition to the already long list of gynecologies and deserves the consideration of all interested in this branch of surgery.

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ORIGINAL ARTICLES.

THE SOCIAL EVIL IN UNIVERSITY LIFE: A TALK WITH THE STUDENTS OF THE UNIVERSITY OF PENNSYLVANIA.

BY ROBERT N. WILLSON, M.D.,
OF PHILADELPHIA.

I CONGRATULATE those of you, to-day, who are just entering this old University. Those who have already learned to call her alma mater need no word from me to tell them of the joys and responsibilities of college life. It is because some of us older college boys have learned just what you are to encounter in the four years of city and university experience, that we have called you together for a frank talk on matters that will have a vital influence on your college- and after-careers.

You will have guarding over your interests, and watching with a keen and kindly eye your successes and failures, one of the warmest hearted men that our Provost's chair has ever held. In the midst of responsibilities that would bend the shoulders of an ordinary man, you will find that he has a smile and a grasp of the hand for each one of you, no matter how unimportant you may consider yourself to be in your particular sphere of activity. He wishes you simply to assure him that you are active in that sphere. I have learned to know him as a man whose aim in life to-day is the genuine benefit and happiness of young men like you and me.

In close touch with your Provost, and equally a man, you will learn to know and love one of the best friends of my college days, and one who learns for the first time to-day, perhaps, that this influence was stronger than almost any other in making my college life of whatever value to myself and others it may chance to be. If he could but know how many men have left these walls with the same sentiment in their breasts, he would tell you, as I now do, that he has not lived in vain. I have seen Vice-Provost Smith in the midst of his day's work, stop as each of a number of thoughtless students pushed his way into the office, and show the same warm interest in the last one that sent the first away with the feeling that he had talked with a friend and one whom he could trust.

For myself, I can simply say that I have worked among you as one of your university physicians for over three years and that I have considered my work a rare privilege and a sacred trust. I have learned many things of student life which escaped me while a student myself; and I have learned the value, during these thirteen years of college associations, of the opportunity of looking on many of the problems that will soon come before you. Perhaps they mean more to me because I have seen many of them both from the standpoint of the student and later as your confidential medical friend.

One of these problems involves a temptation that meets every man sooner or later, will certainly meet you during your college days, and perhaps has already stood in the path of some. I refer to the temptation to risk your health of mind and body by illicit intercourse with women, whom you would be unwilling and even horrified to consider of the same order of being as your mothers or your future wives. Every large city swarms with such women, nearly all of whose lives are wrecked by marital infidelity before they begin to prey upon the happiness of other homes.

Shall I tell you in another way why you are gathered here to-day? Last spring a country boy came to Philadelphia for the first time. He was induced by friends to visit a house of ill fame. He was infected by the woman with gonorrhea, and, though at the time none of the ordinary symptoms appeared, in a day or so his eyes began to smart. Another of his so-called friends advised him in all earnest to wash his eyes in his own urine. He did this at once. Gonorrheal inflammation developed, probably had developed before the urine made the infection sure, and to-day that country boy is totally blind and for his lifetime.

Your Provost and Vice-Provost have watched with increasing interest and alarm the influence upon those who have gone before you of the temptations offered by university life in a great city. They have asked me to talk to you to-day of this matter as one of the students' physicians, and, therefore, one who ought, and, I am glad to say, does, hold intimate and strictly confidential relations with every one of you that cares to use me as an adviser and friend.

In the last three years of my work among the students of this University I have seen you at times and under conditions, that have led you to open your hearts to me; whether always through friendship or necessity it is at present unnecessary for me to inquire. I have seen many of you at times when you would have given worlds had someone told you in advance of the facts which I hope to make plain to you to-day. I have listened, more regretfully on each occasion, to the old cry, "Why did not someone tell me in time?" until it seemed impossible that another year should be allowed to slip by without giving those who are coming on the warning of the experience of those who have gone before. I have seen some of you injured physically, and for life, by either the lack of some such frank, clear discussion of the dangers of impure living, or by wil-

ful disregard of advice in the few instances in which it had been offered.

In my capacity as university physician, therefore, and one who holds himself ready to serve you at any time, day or night, I wish to talk briefly but earnestly of two of the almost inevitable results of impure sexual life. I have said that the opportunity of lowering yourselves in the eyes of God and of true men will certainly be presented to you within the nearest future. In a large city this is unfortunately and peculiarly true. Example, fear of ridicule, or curiosity may be the impelling force; and if any one influence has had a dastardly effect upon the lives of young men, ridicule is that one. Whatever or whoever you are we are interested in you, and want you to know to-day and finally that you transgress the laws of pure sexual living at your peril, and perhaps literally, sooner or later, at the cost of your life.

It may be stated with the barest possibility of error that no man who has once had sexual intercourse with a woman not his wife, fails to make a habit of the crime. It is equally certain that no one has ever indulged in such excesses without sooner or later contracting some venereal disease. This is so literally true that such conditions are considered among medical men as inevitable attendants upon impure intercourse with the other sex. Every preventive has been tried and all have failed. On the other hand, let me say to you as a physician voicing the consensus of medical opinion, that there has never existed a man who could not live a healthy, active existence, throughout his whole life, in the absence of any sexual intercourse whatsoever. It is a common story among college students that after a certain age a man requires sexual satisfaction, if he is to preserve vigor of mind and body. Let me characterize this idea as a curse that has done more harm in the home-world than any other influence, and one which, together with ignorance of the inevitable results in the way of venereal infection, has made it unsafe for men and women to drink out of a neighbor's glass, or for men to accept a pipe, or a cigar, or a cigarette, from the fingers of a friend unless they know him through and through in a way that few men are known. Nature has provided for man's sexual necessities in a way, with regard to which you do not need to be informed, and that provision is one that is as ample as it is providential. If, in addition, a boy has a wise father, who remembers his own temptations, and takes a judicious and the only fair way of strengthening his son against them, by opening his eyes to the danger of transgressing Nature's laws, he is well equipped for growth into noble and healthy manhood. Would that every boy had such a father! Too often the whole subject is treated in open conversation as a necessary and unavoidable evil. We should look upon the man or woman who trifles with the subject of sexual impurity as a criminal either by virtue of ignorance or by intent, and we will even then not reward them as they deserve. We have come to a time when, if the young men of this and other countries do not engage and conquer the social evil, it must be accomplished by the enlightenment of the pure women that still exist: and when your mothers, and your future wives, and your daughters, are warned even against their sons, husbands, and fathers, because they are dangers to humanity, you will begin to regret that you did not lay hold on the cause in time. The trend of the law is in this direction, and by the nature of things it is bound to insist upon it sooner or later. Lincoln is said to have made the remark that "every man who contemplated marriage should stand over the doctor with a club and make him tell the truth in reference to the chosen partner for life. Also that the parents who would allow a girl to marry a man without knowing as clearly as could be known his physical as well as his moral condition, deserved to be scalped." Unfortunately, no one is in a position, as yet, to know these things certainly, and no woman will believe them of her lover. Yet men have married women the day after lying with a common prostitute, and days, and weeks, and months after, syphilis or gonorrhea has appeared in the man, who invariably has been ignorant or cowardly enough to transmit the disease to his wife rather than acknowledge his condition. Many another man has struggled for months toward a cure and has been pronounced well by his physician, only to infect his wife with his latent disease. Add to this the fact that the average physician is unqualified to treat gonorrhea and syphilis successfully, and should not attempt the task, and you will learn how helpless the victim of such a disease is. In all this great city there is hardly a hospital bed that will admit openly, and as such, a subject of venereal disease. There is a tremendous duty to-day upon physicians and parents to learn and disseminate the truth in regard to sexual sin and my conscience will be clearer when I have spoken to you. Let me talk to you now of two conditions, gonorrhea and syphilis, the two most frequent attendants upon harlotry, and two diseases that are far more contagious and widespread than tuberculosis, which is occupying the attention of the public to-day. At the end of our discussion I trust I may have proved assertions which may seem to you at first both harsh and extreme.

GONORRHEA.

It may be a significant fact to you that the first student treated by me after my appointment as student's physician, and the last one seen at the close of the session of 1902-3, were suffering from gonorrhea, contracted during illicit intercourse with a woman. Both of these were sons of refined, well-to-do fathers and mothers. Both of them were ignorant of the imminent danger of infection, and both quoted the oft-heard lie, that "a case of gonorrhea is no worse than a bad cold." Both men had been told this lie by other students, who had themselves previously contracted and suffered from the dis-

case. One had repeated attacks before consulting me, and was then in a serious condition. One of these students is apparently well to-day. The former will carry traces of his gonorrhea to his grave and can never be the father of a child. He should certainly never marry, both for this reason, and for fear of infecting his wife.

During the three intervening years between these two cases, a number of students have consulted me each month, and many with the same story of ignorance of danger. All knew, no doubt, but few realized the fact until too late. Some few, through despair of being cured of a chronic condition, had thrown precaution to the winds, and contracted new infection and new trouble. In one instance that came under my care, a woman, herself a medical student at another institution, had infected five men with gonorrhea, and one of them either she or some other had also infected with syphilis. Two of these men were brothers, yet it would appear that none of the five had confided in any of the rest.

It seems strange that it should not be generally known by students that there is little likelihood of a woman, who admits of such attentions, herself escaping venereal infection, no matter what her social status or what her precautions. It is a rule borne out by medical experience, that a woman who will encourage the advances of one man will invariably do the same with others. It is also a frequent experience for a number of men separately to consult a physician, and assure him that the subject of their attentions could not possibly have infected them as she had never had intercourse with any other man, and yet the facts appear clear to the physician that she had infected each and every one. It is safe to say that every harlot (I use this term advisedly, with reference to her of good family connections, for there are such, as well as the common prostitute; they belong in the same category) has at some time been infected with gonorrhea; and if one stops to learn how difficult and rare a thing it is to thoroughly cure a woman of gonorrhea, he will understand also how dangerous it is to trust himself at any time in her subsequent life within her infected presence.

A few statistics may serve as an illustration, not only of the prevalence of temptation on the streets of a great city, but of the ubiquity of gonorrheal disease in its many forms. It has been well characterized as the most widespread of all contagious diseases, with the single exception of measles. It has been shown that in some of the cities of Europe more than one-half of the entire population, and more than three-quarters of the male population, suffers from gonorrheal infection. Dr. Allen reports from one hospital dispensary in New York City 86,000 cases of all kinds treated in 1900, of which over 3,000 were cases of venereal disease. In 1903 we learn from a commission appointed to study the subject that there are in New York City to-day about 200,000 syphilitic subjects, and probably four times as many (800,000) cases of gonorrhea. To care for these cases and to prevent the spread of infection, there is one bed for every 5,000 cases. This ratio holds good for nearly all the large cities of America. While all prostitutes are considered gonorrheic subjects, it is estimated that every fourth one is qualified to transmit syphilis. In Prussia it is estimated that there are annually 773,000 cases of venereal disease. Still more exact are the following figures: Out of 1,155 patients recently reported as treated at Hot Springs, Arkansas, and coming from all over the United States, it was learned that 818 (70 per cent.) had at the time of examination, or had had gonorrhea; 337 had never contracted the infection. Most of these patients were from the so-called better classes. The ages at which the gonorrhea was contracted varied from ten to fifty-seven years, averaging 21.8 years. Three hundred and eighty-two cases were below twenty-one years of age, and 58 cases were below seventeen years. Of 60,000 sick soldiers in our army of occupation in the Philippines 10,000 were cases of venereal disease; nearly all of these have since come home, and many remain uncured to-day.

These figures will suffice to show that gonorrhea is so frequent a condition that it literally leaves few homes unscathed, if the truth be fully known. As already stated the prostitute offers a ready infection to the male urethra in its virgin state, and a still more likely one to a chronically inflamed mucous membrane. Probably she can and does infect as long as she lives, and undoubtedly she does infect many men in one day. Long after she is visibly cured she may be a source of virulent infection. The result is that she may be honest in believing herself free from danger to others, and become the more dangerous in the belief of her cure. Under the most benign circumstances she is a danger, and under the worst she is a scourge. Infected many times, with each new occasion she becomes freshly virulent. The result is that the world is to-day overrun with venereal disease.

Let me ask a few questions that naturally arise; and in their answers endeavor to emphasize the points I wish to bring home to you.

What is gonorrhea in the male subject? An extremely infectious disease, usually involving some portion or all of the urinary passage from the bladder outward. Any portion of the body may, however, be infected, including the eyes, the skin, the nose, ears, mouth, bowel, and any or all of the internal organs. Its minimum average duration is six weeks. It often lasts for years, and unless promptly and intelligently treated, its effects often remain evident for life. It is a disease for which eminent specialists are constantly seeking some new and effective remedy, which has not yet been found. The question is still under discussion whether either syphilis or gonorrhea is certainly curable. One prominent student of the subject says of the latter "I have studied and treated gonorrhea for fifteen years, and I feel to-day that I know less about that disease than I thought I did several years ago." Another writes

"A large number of chronic gonorrheas, speaking generally, remain uncured. Some of these may be explained by the indolence and discouragement of the patient, others by want of care or understanding on the part of the physician, others by constant reinfection, and still others from no tangible cause, all gonococci having 'apparently' been eliminated." Still another says "the importance of gonorrhea with that of syphilis is 100 to 1, not only from the standpoint of the number of persons attacked, but also from the standpoint of the gravity of the lesions and their perpetuity."

Have I said enough to prove to you that gonorrhea is "worse than a bad cold"?

What are its possible complications and their frequency? Among the most frequent of the complications of gonorrhea are stricture of the urinary passages and sometimes even of the bowel, inflammation and destruction of the internal genital apparatus (the testicles and the tubes leading thereto), blindness, bladder and kidney disease, abscess at any point in the body, and joint rheumatism—all frequent conditions. Less frequent are septic blood infection (usually fatal), brain disease, degeneration of the spinal cord, heart disease, bone disease, peritonitis, pneumonia, and death. You may ask "Why have we not heard before of the serious features of what we believed to be a temporary inflammation?" I answer "Because every case of gonorrheal infection is concealed more jealously than a crime would be, and, if serious complications follow, the specific origin is denied or withheld by both the victim and his doctor." Last winter an officer of the University showed his interest in one of the students by calling on him in the University Hospital, and was told by the student and by the nurse that the trouble was appendicitis, and was shocked and disgusted later on when he was told that the case was one of gonorrhea.

A large percentage of cases of chronic gonorrhea leave behind a stricture of the urethra. Nearly all leave an irritable and often a diseased prostate gland, many leave an irritable or diseased bladder. Between 10 and 20 per cent. of all cases of infantile blindness are due to gonorrheal infection. Statistics of the German Empire for 1894 showed that 80 per cent. of all children born with healthy eyes who became blind, did so as the result of transmitted gonorrhea. In that country there are 30,000 cases of blindness to-day due to gonorrhea, and mostly transmitted from other persons. In spite of all the latest knowledge and the newest methods, approximately 600 cases of blindness occur annually in Germany from this one avoidable cause.

In this country from 25 to 50 per cent. of the blind in institutions owe their loss of sight to gonorrheal infection. In one year in New York City 136 cases of gonorrheal ophthalmia were reported.

Inflammation of the epididymis (the tube from the testicle outward) is a very frequent complication, often resulting in absolute sterility, as will be shown later. Gonorrheal rheumatism is also a serious affection, usually occurring in a large joint like the hip or knee, and frequently leaving a permanent disability. The other complications mentioned occur with varying frequency, depending upon the attention paid to the condition by doctor and patient as well as upon the promptness with which the disease yields to treatment. While far less frequent they are even more serious. There is no question that many cases of kidney disease owe their origin to gonorrhea, many resulting years after in fatality. During each year a number of deaths are recorded as directly due to infection by the gonococcus of one of the vital organs of the body. While writing this statement I have before me the records of five fatal cases that have come easily to my notice, three from gonorrheal peritonitis, one from gonorrheal valvular disease of the heart, and one of gonorrheal septicemia which will be mentioned later.

Can gonorrhea be cured, and can the patient be sure he is cured? To the first question probably "yes," and to the second certainly "no." We have already heard the doubtful statements of eminent students of the disease. Neisser, one of the first authorities in the world on venereal disease, claims that gonorrhea can be cured. Your own professors of surgery, White and Martin, also claim that it can. All admit that very many cases are *not* cured, owing to one reason and another. Every year brings forward new instances of old, supposedly cured infection relighted by disease, debility or debauch. In children, undoubtedly, the prognosis is better than in adults, probably because the disease is taken in hand earlier and more systematically; also because all the tissues in the child tend toward healthy growth. Frank in Germany has shown, however, that the gonococcus may remain quiescent in the prostate gland for months and years. No symptoms remain, yet the disease may be relighted and others be infected. I have already quoted Van der Poel to the effect that a large number of chronic gonorrheas remain uncured. Köppen cites many cases in which all symptoms had disappeared, and yet the disease remained latent. In regard to one of these he says: "Not one sign was left of a previous gonorrhea." Six years later there was irritation in the urethra, and he obtained gonococci from the urinary canal. In another case none of the germs of gonorrhea had ever been discovered in the discharge, though the clinical picture was complete. Six years later he found gonococci in the urethra. He concludes his article with the statement, "Gonococci can exist for years in the organism, as proved by numberless cases." A case is described in one of our own medical journals, dated September, 1903, in which a man infected his own eye with gonorrhea after six years during which the disease appeared to be cured. At the same time all his joints became involved, as well as the tendon sheaths of one foot. The gonococcus was obtained from

the discharges of the eye, proving the real nature of the infection. Our answer to the question, then, must be that under favorable circumstances gonorrhea probably can be cured. No case is cured until all gonococci have disappeared from the urethra. Many doctors either do not know how or do not take the trouble to look for these micro-organisms. Many patients never return for completion of the cure, after the symptoms have become tolerable. Under the best treatment, it should be remembered, success may not be attained. Only time will show whether an actual and permanent cure has been secured. No victim of gonorrhea can be absolutely sure, when the symptoms have disappeared, that he is cured of his infection or that he will not infect his wife years after.

How long after an attack can a man infect a woman with gonorrhea? We have already seen in our answer to the preceding question that years may pass by and a man may still be infectious to a wife. As long as there are active symptoms, transmission of the disease is likely. When these have subsided the danger decreases, but never disappears until the last gonococcus has been destroyed. If gonococci can live six, ten and fifteen years in the organs of the body, as they have been shown to do, probably they can live longer, and to an almost indefinite time. The only inference from the cases cited is that the gonorrheic subject must never be surprised if he finds in after years that his disease has remained latent, and that he has infected some innocent person. The possibility is always before him.

What are the possible and permanent injuries from an attack of gonorrhea? We will at present consider only the male sex. It has already been shown that fatality is occasional. The most frequent permanent disability is a chronic gleet or catarrh of the urethra, prostate gland, the bladder, or all three. Such a chronic inflammation of the urethra usually results in stricture of that passage. Stricture causes obstruction to the flow of urine, and as a consequence bladder inflammation often follows, and the disease often spreads from there to the kidney by direct extension. Gonorrheal rheumatism very frequently, we may say nearly always, leaves a crippled joint.

By far the most serious sequela of gonorrhea is sterility, or lack of power to produce progeny. The commission appointed by the American Medical Association estimated that 42 per cent. of all gonorrheic subjects become sterile, and that many more cause sterile marriages after the first childbirth because of the infection and consequent sterility of the wife. Czerny says that "50 per cent. of all sterility is due to the husband's gonorrhea." Morrow says "syphilis curses the child; gonorrhea prevents its existence by rendering the male sterile."

President Roosevelt has recently spoken of the social evil, meaning the wilful sterility of the wedded life. Would that he might cry out from his presidential chair against the dangers of venereal infection and the real cause of sterility of the sons of America.

What are the results of gonorrhea in the woman? Fewer women, by far, are cured of gonorrhea than is the case with man. I shall not speak, however, of the clinical picture in the female sex. It will be sufficient to say that with the woman gonorrhea means almost certainly an infection of her internal organs, and sooner or later a serious operation. Pregnancy increases the danger of upward and general infection. Sometimes there is no serious sign of trouble until the woman becomes pregnant. Nöggerath states that 50 per cent. of sterile women, owe their sterility to gonorrhea. Neisser, already quoted, fixes the percentage at a higher figure. Ascher found that of 227 sterile women in his care 121 were sterile owing to gonorrhea. Sänger says that abortion occurs as frequently owing to gonorrhea as it does as the result of syphilis. Nöggerath cites the cases of 53 women, pregnant during a gonorrhea, of whom 19 aborted. Frühingsholtz cites 101 cases, of which 23 aborted, and 7 went into premature labor. Price of this city says that of 1,000 abdominal operations in women 95 per cent. were the result of conditions due to gonorrhea. The statistics of the German Empire for 1894 showed that 80 per cent. of the women who died of uterine or ovarian disease died as the result of conditions dependent upon gonorrhea.

Have I convinced you yet that the disease is of more significance than a "bad cold?" If not let me add a final argument and if you resist the plea of the children no influence on earth can save you from an experience which you dearly earn.

Can gonorrhea be transmitted to others than your wife? From what I have already told you, you now know that the vast number of cases of gonorrhea in the woman in married life are instances of innocent infection on her part. We have omitted until now the possibility of infecting others, and by means other than by sexual intercourse. First, and least important, by all odds, you can infect your own eyes, nose, mouth, or bowel, and probably will unless you learn the virulence of the gonorrheal germ. Next you can infect, and usually do infect, the bedclothes, towels, napkins, handkerchiefs, knives, forks, your pipe, and all articles of ordinary and constant use, and sometimes, by means of them, your wife and children, your friends, even, mayhap, your mother. It is the result of nature's protecting laws and not your care that you fail to pass to all who are around you the curse that you have brought upon yourself. Let me prove this to you in all its hideousness of truth. Cook has reported recently a case of a four-year-old daughter of a thirty-five-year-old father, from a refined family. The father contracted gonorrhea in the usual manner, and soon the little girl developed the disease. There was absolutely no other traceable source of the infection. Morrow cites the case of a little girl into whose eye a playmate's finger had been poked. The injured child suf-

fered a typical gonorrheal conjunctivitis, from the discharge of which the gonococci were obtained. Not long ago there was an epidemic of gonorrhea among the children of Posen in Germany. In two weeks 236 children contracted the disease, which was finally traced to the use of the public bath. Someone had infected the pool. In spite of the constant suppression of such cases there are many such reported in the medical journals. I have myself seen in hospital work many cases of gonorrhea in children under five years, sometimes transmitted by accident, sometimes by intention. Only when the law imposes a fine and imprisonment upon him who knowingly infects another person will this crime be blotted out; it may be that a sterner penalty still might be effective (as already suggested) and meted out at the hand of the surgeon's knife. Innocent infection of children occurs usually among those who sleep in bed with their parents or use the same towels or table linen. Night clothes, bed linen, towels, sponges, underclothing, soap, the water closet,—if once infected, may retain the germs for weeks and months, and the origin of the infection may, sad to say, never be discovered. On the Scandinavian peninsula every case of venereal infection is reported to the authorities, as it will be some day here. There will then be fewer cases of venereal disease, and fewer innocent victims. I believe, moreover, that in this procedure lies the remedy for marital infidelity, and for sexual sin in all its forms.

There is another serious phase to the gonorrhea of children. When once infected they also transmit the disease, and oftentimes in the same manner as their fathers, and with equal avidity Wolbarst, in New York City, cites 22 cases occurring in his work during two years, in children between eighteen months and twelve years of age. The usual mode of infection was attempted sexual intercourse. On investigation he found that it was by no means an uncommon thing in this district for children not yet in puberty to indulge in sexual intercourse. He saw three cases of boys, four, ten, and twelve years respectively, infected by girls between ten and twelve years. Many other cases were due to the child sleeping with parents, brothers, sisters, who had gonorrhea. Cotton calls attention to a "string of little girls coming to my clinic suffering from gonorrhea. A week later," he says, "my assistant brought a boy of ten years who had been infecting these little girls." Last year I saw more than one student of this University who would not return home for his holiday, when he heard that he must be careful not to infect himself or his family. I shall never forget the expression of one who said "God! you don't mean that I might give this to my mother."

Boys, forget yourselves! If you owe anything to that mother, sister, perhaps some day a wife, your children, your friends, servants, even the laundry woman,—do not risk this disease!

Just a word as to *the mortality of gonorrhea.* This is occasional, though by no means as high as that of syphilis. Only last year there came to my notice the case of a young man, dying from a diffuse abscess and pyemia (blood poisoning) of unknown cause. His life was pledged to a lovely girl, who nursed him on the edge of his grave. Both were of our nation's best blood. Cultures from the pus of his abscess and from his blood showed colonies of the gonococcus, and a history of an almost forgotten attack of gonorrhea was obtained. It is almost too horrible to think of the crime of the future had he lived to marry the woman who was nursing him in an ignorance of the cause of their double sorrow as complete as his own.

Such a tragedy is being enacted certainly many times every year in this wide world, and bids fair to become an even more frequent occurrence. I have mentioned four other deaths to you. The aggregate of deaths from the sequelæ and complications of gonorrhea amounts to no small total, and must soon attract the attention of those who have heretofore looked on the disease as a passing ailment.

Have I made plain to you that as the result of one rash act

Your wife may be a lifelong victim,
- may be deprived of the power of conception,
- may lose her life by an operation or by infection.

Your child may lose its chance of birth,
- may, if born, be deprived of sight, or hearing,
- may, if a male, suffer consequences equal to your own; if a female, suffer like the mother.

Yourself may never be cured,
- may infect those who are dearest to you,
- may lose your own life and those of others.

Let us now for a brief moment consider syphilis.

SYPHILIS.

Probably far less need be said to you about this disease, as its name is known to most of you, and few speak of it lightly. When you learn that many of those who surround you in your daily life are virulent with this disease, and that changeling children are born into our best families as the result of it, and that prostitution is likely to fix the unyielding grasp of syphilis upon you, it may act as a persuasive to keep you true to your ideals.

What is syphilis? It is an infectious disease of the whole system, usually making itself first known by means of what is called a chancre, or initial sore. This is followed usually by a general skin eruption, swelling of the glands, falling of the hair on all parts of the body, and later on by serious disease of the blood vessels and internal organs. It is usually contracted during sexual intercourse; in the case of men, usually in prostitution; in the case of women very fre-

quently in an innocent manner and in wedlock. It involves a course of treatment of at least three years, and sometimes resists all treatment. It is found in the highest and lowest classes of society.

How prevalent is the disease? Fournier states that one seventh of the population of Paris is syphilitic, while in Russia whole towns have been decimated by the disease. The victims in the latter country are mainly women and children, and many cases are due to the kissing of sacred images and to the embraces of syphilitic acquaintances. In certain of the European countries 25 per cent. of the population of some of the villages is syphilitic, in most instances due to innocent infection, prostitution being almost unknown. China and Japan are overrun with syphilis. It has been estimated (Dictionary of Statistics, Mulhall) from the cases in the military hospitals in Europe that between 7 and 43 per cent. of the entire soldiery is infected. The average national percentage was found to be 14 per cent. The report of the American Dermatological Society finds that 11.5 per cent. of all skin diseases are syphilitic. And in our own country again. Out of 1,485 cases of all kinds treated and questioned at Hot Springs, Arkansas, in 1901, 831 had had syphilis. Gihon estimates that there are 2,000,000 cases of the disease constantly in the United States.

Sänger has shown that nearly one-half of all the prostitutes in New York City freely admit that they have had syphilis, and half of these gave birth to syphilitic children. And as a gloomy shroud for all of these figures, Morrow finds that 70 per cent. of the syphilis in the women of New York City is the result of conjugal infidelity.

Can syphilis be cured? This is a far more difficult question to answer than that with regard to gonorrhea. My personal belief is that it usually can, if well treated and in time. A cure, under the most favorable circumstances requires at least three years of constant medication. Many cases require a longer time. Some prominent syphilologists declare that the disease is incurable. Certain cases are absolutely incurable. Among these may be cited one reported recently by Schamberg, which was under treatment without success for eight years and two malignant cases reported by Fournier in 1899. The general prognosis of syphilis is probably a good one. The constant danger that the treatment has not been radical or thorough enough always threatens, however, and is well expressed by Osler when he speaks of "the extraordinary frequency of the cerebral and other complications in persons who have had the disease, and who may even have undergone thorough treatment." Howard has reported a case seemingly cured and relighted, after a year of quiescence, by influenza. Many other cases appear to be free from symptoms for a time, and then die of insanity, softening of the brain, locomotor ataxia, or some other nervous disease.

How long after infection can the disease be transmitted to others? During the entire period of what are called the primary and secondary stages. The latter, if the disease has been thoroughly and conscientiously treated, is usually confined to the first few years following the infection. Only in exceedingly rare instances has infection taken place after the fifth or sixth year. Such cases do, however, occur. Sack reported last year the case of a man on whose person appeared an ulcer (gummatous) ten years after the original infection, and infected his young wife, who displayed typical symptoms of a new syphilitic infection. Six months later she also had a miscarriage. Herscher reports a case of contagion from a husband who unquestionably contracted the disease thirteen years previously. Kopelinski has reported two cases of inherited syphilis infecting previously healthy individuals, in both instances a grandmother (an almost unheard-of thing).

What are the effects of syphilitic infection upon the man? Perhaps the most serious is the fact that he becomes at once a source of danger to his family, friends, and society in general. This begets the next most serious influence which is the mental condition. Fournier cites 18 cases of suicide in young syphilitics. We have already sketched the course of the disease itself, and need not repeat the symptoms here. Probably the most serious physical damage is done the blood vessels and kidneys. Many a case of apoplexy and aenurism is directly due to syphilitic change in the arteries of the brain or elsewhere. Many cases of insanity are also due to this disease. At present there is an attempt to prove what many authorities believe to be true, that locomotor ataxia is purely and simply a syphilitic picture. Many cases of syphilis become and remain completely bald, with no eyebrows, and no facial hair. Some few severe cases lose all the bony features of the face, the nose and roof of the mouth undergoing complete necrosis (bony gangrene). Many have a persistent skin eruption. Those who inherit syphilis are usually marked for life, and die at an early age. Tuberculosis frequently accompanies or follows syphilis, like the driver of a hearse.

What are the effects of syphilis upon the woman? The physical effects are the same as those in the man. If she bears children during the course of the disease they are likely to be syphilitic and otherwise defective. Even more likely will they be stillborn, or abortion take place. There is no other cause of abortion that compares with the vicious influence of this disease.

A syphilitic woman is likely to infect many more persons than is a man. If a prostitute, she probably infects most of those with whom she has intercourse. Even in everyday life a syphilitic woman is a source of great danger. Woman's habit of indiscriminate kissing is the most prolific source of transmission next to sexual congress, and especially in this country, where men confine their embraces to their intimates only and to the female sex, unless it be in the case of

children. A woman's embraces are much more promiscuous, and she proves much the more active in spreading the disease.

What are the effects of syphilis upon the offspring? These are two and both are serious in the extreme. First a tremendous percentage of the children born of syphilitic parentage are deficient mentally and physically. Secondly, between 20 and 40 per cent. of all conceptions by a syphilitic woman result in either abortion, stillbirth, or premature labor. Even if born with a competent mind, the child who has inherited syphilis is cursed as Job was not. It is likely to die before it reaches puberty, and is generally marked so as to be an object of pity throughout its life to itself as well as to those who know the cause.

How can syphilis be transmitted? By contact with a syphilitic sore during the primary and secondary stages of the disease, also with the blood, with the saliva, or any fluid that may carry with it the discharges from a mucous patch or other syphilitic lesion, etc. Usually the infection is transmitted during sexual intercourse, though extragenital and innocent infections are now recognized to be very frequent, as by means of knives, forks, spoons, drinking glasses, pipes, cigars, etc. Kissing, as has already been stated, is one of the most frequent methods of contagion. There is danger in any abraded surface upon the body when in company with a syphilitic in the infectious stages of the disease. A mother may infect a baby, a baby may infect a nurse, the father may infect the whole family. Weitlander has reported within the last three weeks two instances of infection of entire families, in each case by a small child, known to be syphilitic, who was taken in to board. The infection undoubtedly took place by means of spoons, dishes, etc. If any warning given at this time will take root in the minds of those who are unfortunate enough to have contracted the disease innocently, and to have extragenital sores upon their body, it must be this, that such cases are the most dangerous to mankind. The very irony of this fact makes it the more pitiful, and the crime of the original infection the greater. I do not think I need emphasize the burden of the cry of the infected one, who would warn each of you from the possibility of becoming a danger to your family, your doctor, and all around you.

What is the mortality of syphilis? In England in the period 1880-90 1,742 males over five years of age died from the disease. Whole towns have been decimated in Russia. Last year in Philadelphia there were 37 deaths registered as due directly to syphilis. If we add the many deaths due to apoplexy directly dependent upon syphilitic arteries, or to other more obscure syphilitic conditions, the total would in all likelihood be an appalling one. It is sufficient to say that there is a decided mortality as the direct result of the disease and its complications that cannot be overlooked. The secondary mortality has recently been brought home in a most impressive way by Fournier, a French physician, already quoted, who has collected 18 cases of suicide directly or indirectly dependent upon the knowledge of the patient that he had syphilis.

Let us now gather together the lines of our talk. I have told you many of the consequences of gonorrheal disease. I have purposely said much less of syphilis. Other venereal infections I have entirely passed by. May I now fairly ask for your decision in regard to certain questions which I put to you earlier in the day? Is prostitution worth while? Is it safe? Do you dare to run the risk? Have I said enough to sufficiently warn without rendering you callous through overtalking? If so, I shall welcome the day when your Provost asked me to work among you as student's physician. There are those who make light of the social crime; and you now know why I shudder when I hear them trifle about a subject the gravity of which they know nothing. I have recently read a book by one of the prominent literary women of the day, as full of vile insinuation, and as wicked in its flagrant discussion of man's and woman's infidelity as if she had never heard of a wrecked home or life. The story itself was of a social crime, and was read with avidity by the unthinking public. Perhaps you have all read it.

This very summer there appeared a book, which I found on my library table, loaned by a "friend" to my wife. Its central figures were separated by the crime of the age, and, though lovers indeed, could not marry. There were three other marriages prominently introduced into the story, and two of these were blighted by infidelity of one or the other party. I read this book because the author—this time a man—had written other books of surpassing beauty and brilliancy of thought and theme. If such books influence others as they do me their authors must shoulder the responsibility for many a mental and moral downward plunge, and only after an effort a struggle upward. God forgive anyone, I say, who dares urge a man, and above all, a young unmarried man, to trifle with the purity of sexual relations as these writers have presumed to do.

And now one last word to a body of men that will one day take part in the destiny of this country. I have carefully avoided telling you that you owe the sterling purity of mind, soul, and body, to your God and Maker. I trust that someone else may do this in the near future and in this same old Chapel—whose benches already hold the sons of fathers who have gone before. I would not have you forget the fact that God has made for your use a body that is more wonderful and delicate in its mechanism than any invention of human genius, and that in your power of raising up children after you who may do Him honor He has given you control of a mystery that no scientist has been permitted to unfold. Use this gift nobly and well; and in order to do this thing, guard your purity of thought and action as jealously as you would on the day that you bind yourself, for life and death, to the wife.

whom God gives you in the place of your mother. You owe to her and to your children a perfect moral and physical legacy.

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CASE OF MASTOIDITIS; SINUS THROMBOSIS; PYEMIA; TWO OPERATIONS; RECOVERY.*

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RECOVERY in a case of marked pyemia from any cause is certainly well worth reporting. It is this consideration, as well as many other interesting features, that has led me to report the following one.

The patient, Jennie Gallagher, a stout Irish girl of twenty-five years, came to the clinic of the New Amsterdam Eye and Ear Hospital on March 7, 1903, with the following history: Five weeks ago her sister had died of puerperal septicemia and she was in constant attendance upon her until she died. Two weeks ago she was taken ill with the grip and three days thereafter developed some earache on the left side. The same night there was rupture of the membrana tympani and a free discharge took place. Upon admission to the hospital there was a profuse discharge and a perforation in the anterior inferior quadrant of the membrana tympani, marked pain and tenderness with distinct redness and swelling. The swelling was confined to the mastoid region, did not extend upward and backward toward the site of exit of the mastoid vein, nor to the upper portion of the cervical triangle. The discharge showed abundant evidence of the presence of stereptococci. The appearance of the patient was that of profound infection; temperature 101⅘° F.; pulse 120; respirations 30. Immediate operation was advised, at once consented to and done the same afternoon with the assistance of Drs. Claiborne, Barstow and Cook, and in the presence of many others, the patient being under ether.

The usual Schwartze's operation was done. The whole of the outer table was found to be softened, necrotic, and the cells filled with dark blood and granulations. The entire cortex was removed to the tip. Upon making an attempt to open the antrum with the rongeur, the sinus, the position of which was abnormally far forward and its wall extremely thin from caries, was accidentally opened, giving rise to a profuse hemorrhage. A tampon was quickly inserted and the hemorrhage promptly arrested. A posterior flap was now made to give better access to the sinus, when a small discolored point was seen upon the sigmoid roof. This necrotic opening was gradually enlarged by means of the curette and the rongeur, exposing the descending portion of the sinus for nearly its entire length. The plug was then removed from the sinus and a new one inserted. The antrum and mastoid were packed with iodoform gauze. The upper parts of the flap were brought together with silk and catgut sutures and a bandage was applied. The patient bore the operation well.

On the following day the temperature dropped to normal, the pain had ceased, and the entire condition was satisfactory. On March 10 the dressings were removed. There was no suppuration, the wound looked aseptic; the plug was removed from the sinus, no hemorrhage took place; temperature 100° F.; pulse 86; respirations 28.

The wound was dressed again on March 12. The temperature had risen to 100.4° F. On removing the gauze it was found that the wound was sloughy, the periosteum was detached from the bone, and there was a profuse, offensive discharge from the wound. The exposed sinus was cleansed and the gauze reinserted.

On the two following days the wound had about the same appearance, but distinct redness

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and tenderness in the course of the jugular and an acute tonsillitis had developed. The patient complained very much of pain from this and of aching all over. On March 15 a very painful arthritis of the middle finger of the right hand had developed. The wound was dressed and there were suppuration and a gangrenous appearance of the posterior flap; temperature 103° F.

On March 16 the temperature was the same and the pulse was 120. On the night of March 16 she had a severe chill, with a temperature of 103.6° F.; pulse 130; respirations 36. Ophthalmoscopic examination revealed choked discs in both eyes. The diagnosis of septic thrombosis was made and another operation was proposed and performed on the afternoon of March 17 at four o'clock.

The original wound was opened up and another posterior flap higher up was made. All the remaining bone covering the sinus was removed by the rongeur, first in the direction of the torcular. The covering of the sinus was then slit with a pair of straight scissors in its long axis and was found to be filled with a firm fibrinous clot, which was removed with the sharp spoon and the blood current re-established in this direction, this part of the sinus being then plugged with iodoform gauze. The exploration was then continued in the descending portion of the sinus toward the jugular bulb, which was also found to be filled with a purulent, disorganized clot. This was removed and, as no blood current from the proximal end could be re-established and the curette carried into the jugular still continued to remove clots and pus, ligation of the jugular seemed to be imperatively demanded, but the patient's condition was such as to make us fear that she could not survive any further operative interference. The pulse was rapid (140 or more) and very feeble; the respirations were very frequent. It was therefore determined to make another effort to get the blood to flow through the jugular, which was finally accomplished by still further curetting of the jugular vein and by more or less forcible manipulations on the jugular vein and neck, by which means quite a quantity of blood streaked with pus escaped and then a free and copious hemorrhage took place. This method was resorted to with the full knowledge that it has been strongly condemned by excellent authority and because of my unwillingness to leave the obstruction and the assurances that the patient, who was almost moribund, could not survive any longer under the operation. The operation was now hastily terminated. No sutures were employed in the flap. The exposed dura was covered wth iodoform gauze, both ends of the sinus were plugged with the same, and a bandage was applied. The operation was completed at about 6:30 P.M. The pulse was so rapid and feeble that it could hardly be felt at the wrist. Hypodermics of whisky, ether and strychnine were given and a large high enema of normal salt solution. Hot-water bottles were applied to the surface of the body and friction made. Under this heroic treatment, after a number of injections, ⅙ of a grain of strychnine in all having been given, she was gradually resuscitated, but the pulse was still very frequent, about 140, and hardly perceptible. The temperature by rectum was 103° F. and by the following morning it was 102.2° F., with profuse perspiration. The next day the temperature ranged from 100.6° to 102° F.; pulse 90 to 102; respirations 38 to 42.

The patient was given whisky and strychnine by hypodermic injection until evening when she began to take whisky by mouth. She had several loose stools and slept but little. There was no disturbance of the sensorium. She complained of pain in both arm and hip and had some nausea but did not vomit.

On March 19 the wound was dressed. There was not much suppuration. Both plugs were removed; no hemorrhage followed. Temperature, pulse and respirations continued about the same. There was some stiffness and tenderness in the upper part of the cervical triangle, but no swelling and very little pain on pressure. She complained of pain in the right ankle which on inspection was found to be red and swollen. Hot whisky and liquid peptonoids were given.

On March 20 the temperature was still higher; pulse and respirations showed about the same variations. The patient took nourishment well. The ankle was still more painful, red and swollen. There was profuse perspiration. The patient slept a good deal and seemed stupid. There was involuntary passage of urine; the pulse was rapid but stronger. The wound discharged profusely.

On March 22 the patient complained of pain in the right shoulder which was tender to the touch. The temperature ranged about the same, with profuse perspiration. The ankle was still more swollen; a bichloride dressing was applied. On the next day she had a slight sensation of chilliness but no distinct chill, perspiring very profusely.

On March 24 the temperature rose very high, reaching 104.6° F.; pulse 131, respirations 52, and she complained of severe pain in the right side and back. On March 27 a careful examination of the lungs, made by Drs. Barstow and Bickerston, revealed the physical evidences of pneumonia over the right lung.

March 28, highest temperature 103.6° F. at 6 P.M.; highest pulse, 128; highest respiration, 148. Pain in the back very severe. Perspiring very freely.

March 29, highest temperature, 100.8° F. at 11 P.M.; pulse 120; respirations 48. No cough or expectoration.

April 1: Wound is gradually healing. Sinus, antrum and bulb gradually filling in. Dressed with balsam of Peru.

April 2, highest temperature, 103.6° F.; pulse 129; respiration 40. Restless, a little incoherent; perspiring freely; involuntary urination. Abscess in upper anterior part of arm opened. In dressing the wound, on removal of the gauze

from the bulb, a smart hemorrhage occurred which was only controlled by tight packing.

April 6, a very tender, indurated place over the left buttock; probable abscess forming. Abscess on the arm continues to discharge freely.

From this time on abscesses formed in the buttock, two more on the arm below the first; both were opened, as was also the one on the nates. The wound had gradually closed in the sinus and that in the antrum had entirely healed. There is a good deal of bare bone over the posterior part of the mastoid and the squamous portion of the temporal bone. The finger has healed with firm anchylosis of the joint, but the swelling of the ankle has entirely disappeared without any impairment of the joint. For the last two weeks the pulse and temperature have been very nearly normal, the highest being 99 or 100° F. in the twenty-four hours.

The patient is still bedridden, very weak and unable to raise her head from the pillow. The wound at both ends of the sinus is closed. There is still some uncovered bone in the posterior part of the mastoid and squamous portion of the temporal bone. The patient may be fairly said to be convalescent, but I reserve a full account of the case, with such remarks as I may wish to add for another time when the case has reached a final conclusion.

Since writing the above the condition of the patient has been one of very slow and tedious recovery, with a very slight rise of temperature in the afternoons, frequent sweatings, gradual diminution of the quantity of pus discharged from the abscesses until they finally healed, great exhaustion, irritability, and indisposition to help herself, not even lifting her head from the pillow until after April 26, when the temperature continued about normal throughout the twenty-four hours, and she gradually began to recover some degree of strength and sit up in bed a little while.

On May 29 the exposed bone was found to be loose and a large sequestrum was removed, leaving perfectly healthy granulations underneath. The sequestrum consisted of a portion of the mastoid and squamous portion of the temporal bone, the upper and posterior border 3 cm. long, irregularly serrated for articulation with the parietal bone, the inferior border 3 cm. long, irregular from marks of the rongeur, the anterior border irregular and notched, 1½ cm. long, the posterior border 8 mm. long and slightly irregular, the whole varying in thickness from ½ to 2 mm.; the inner surface irregularly concave and the external surface convex.

After removal of the sequestrum the healing progressed much more rapidly. On June 11 the patient was discharged, still in a very weak and emaciated condition, having been in the hospital for a little more than three months. There was still a small area of wound unhealed, but the sinus and antrum wounds had entirely healed. The right middle finger was flexed upon the hand and the metacarpal joint anchylosed. The temperature was normal, appetite good. There was gradual daily return of strength and only an obstinate constipation, which had existed all through her sickness to contend with.

On June 27 I last saw the patient at her home, having been called to see her because she had suffered for the past two nights with headache and flashes of light before the left eye and a piece of bare bone in the lower part of the wound had been observed. I found that the appearance and general condition of the patient had very greatly improved. She had gained both in strength and weight and walked about all over the house without fatigue. She said, however, that for the last two or three nights she had been kept awake with headache which extended from the wound to the temple and occiput and that there were flashes of light and obscuration of vision. The wound had healed except for a narrow groove of granulations immediately behind the auricle. In the lower part it was covered by thin, newly formed skin; a whitish point presented itself. Upon taking hold of this with a pair of forceps, a sequestrum shaped somewhat like the letter U was easily removed, the longest branch being about 7 or 8 mm. long. Two minute spiculæ of detached bone were also removed from the midst of the granulations. The pulse and temperature were normal. There was still obstinate constipation which was only relieved by daily doses of a saline cathartic.

An examination of the eye with the ophthalmoscope showed an almost complete restoration of the optic discs to their normal appearance. There was only slight haziness of the disc margin and rather small arteries. She could readily count fingers across both communicating apartments, a distance of about twenty feet, and read easily the finest newspaper print. In the absence of any rise of temperature or aggravation of the condition of the fundus oculi, I did not consider these symptoms of any great moment and the patient may fairly be said to be convalescent.

Remarks.—This is the second case of pyemia which has occurred in my practice following mastoiditis, both of which recovered. The other one, which has never been published, was observed in April, 1892, in a young man of twenty-one years, suffering from otitis media purulenta after scarlet fever. There were swelling and tenderness of the mastoid; infection had occurred when I saw him, with high temperature and chill. A mastoid operation was made and severe pyemia ensued, involving many joints. There was septic pneumonia and choked discs and the characteristic temperature with alternate sweatings, and yet, after several months, the patient recovered. Whether or not there was thrombosis of the sinus is not stated in my record of the case.

Dr. J. B. Emerson reports "A Case of Pyemia Following Acute Suppurative Otitis: Recovery" (Transactions of the American Otological Society, 1892, p. 221), in which no operation on the mastoid or sinus was performed. There was septic pneumonia. The treatment extended over a period of four months. A number of abscesses

formed which were opened, no drugs being used except for the pain. The cause of the pyemia is not given, but, as in my own case, was probably due to sinus thrombosis of which much less was known at that time.

It is worth while recalling the fact that my patient, while suffering from the ear disease took care of a sister who died of puerperal septicemia, and to raise the question whether this exposure had anything to do with the severity of her attack. She was unquestionably septic when first seen and the examination of the pus showed streptococcus infection. Whether the pus absorption antedated the thrombosis is another point of great interest; that it did not exist at the first examination seems evident enough, although there was a necrosis of the sinus walls, in removing which the sinus was exposed and opened, but the fact that there was a very large hemorrhage at that time showed there was no clot. The symptoms of infection after the first operation which showed infection were tonsillitis, arthritis of the finger joint, chill and choked discs. It is most probable that the sequence of events was as follows: The sinus was infected at the time of the first operation. For the first three days thereafter improvement took place; then the sinus clot formed, with the subsequent appearance of the symptoms so characteristic of sinus thrombosis.

Dr. Frederick Whiting, in "A Contribution to the Symptomatology and Treatment of Pyemic Sinus Thrombosis, Based Upon Three Successfully Operated Cases" (Archives of Otology, Vol. 28, No. 1, 1898), says: "In the event of failure to re-establish the circulation from below the jugular bulb, whether you have removed a purulent disintegrated clot or not, it is your imperative duty to your patient to tie the internal jugular forthwith, as you otherwise leave wide open the main avenue to almost certain pulmonary metastases." And again, "Just at this point the writer desires to enter a vigorous protest against a procedure which has been occasionally witnessed upon the operating-table, and himself participated in, when an attempt is made to force the return circulation from below upward through the obstructed bulb by forcible manual pressure upon the muscles of the neck. I believe that all attempts at re-establishing the circulation by making pressure from below upward upon the muscles of the neck, in the hope of dislodging the clot, cannot be too severely condemned. It is a procedure in my opinion eminently calculated to favor the dissemination of obstructing infective material either directly through the jugular or collaterally through the tributary veins." I have quoted from the author verbatim, because this method, as I said in reporting my case, is the very one I resorted to, notwithstanding it had been strongly condemned by so excellent authority, and I venture to say that in the case before me it was fully justified and indeed the only thing to do. It was obvious to all who were present that the patient could not survive any further protracted operative interference, and to have left the obstructive clot in the vein would have greatly increased the hazard of the patient's recovery, while the maneuver was successful in re-establishing the return current through the jugular, and, although septic pneumonia did take place, the patient recovered nevertheless, and I contend that she was placed in a better condition for recovery by the fact that the return circulation was established. Without, therefore, saying that the procedure is always to be recommended, I am prepared to defend its adoption under similar conditions and to affirm that every rule may find exceptions and that no arbitrary one is applicable in all cases.

Another point of great interest to me was the somewhat difficult matter of determining whether the first symptoms of pus absorption were really due to sinus thrombosis. The tonsillitis was the very first symptom to cause pain and rise of temperature; then came the involvement of the finger-joint, which was so slight and the swelling, redness and pain so closely resembled gout or rheumatism and the co-existence of the tonsillitis made it more difficult to differentiate between this and arthritis due to pyemia. This, however, was made easier when the temperature rose and the other symptoms, especially the choked discs, made their appearance. Septic pneumonia was the gravest symptom presented by the patient. Neither of the joint involvements went on to the formation of pus, and, although the peripheral abscesses were exhausting to the patient, they were nevertheless accessible to surgical treatment and reach. I may mention that besides being freely opened they were kept drained by gauze and thoroughly cleansed by antiseptic injections.

While speaking of local treatment, I wish to call attention to the use of antiphlogistin, which was used as a dressing for the pneumonia, swollen joints, and indurations preceding the local metastases. In all of these it was most beneficial in allaying pain and especially so in the pain in the side caused by the pneumonia, the patient herself speaking loudly in praise of the remedy. Another method for the relief of the pain in the swollen ankle-joint of which I wish to speak is the suspension of the foot and leg, so as to take the weight off the joint and heel. This was done for several hours daily during the height of the joint involvement.

The neuroretinitis at the last examination had subsided and the patient saw well, although no accurate examination of the acuteness of the vision was made. It may, therefore, go on record as one of recovery after intra-ocular involvement, in which cases, according to Kipp, the percentage of recoveries is about 50 per cent.

In conclusion it must be instructive to recall to mind the recovery of such cases whenever they occur for the encouragement of those who may feel that such conditions as were present in this case, both before and after the operations, were most discouraging, and the prognosis apparently hopeless.

THE SURGICAL TREATMENT OF ACQUIRED INCONTINENCE OF URINE IN WOMEN.*

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THERE is nothing perhaps more disagreeable nor heartrending than a case of incontinence of urine in women and the surgeon will never have a more grateful patient than the one he cures of this affliction. Every practitioner comes in contact sooner or later with these unhappy patients seeking relief of their infirmity, and it is on account of the importance of the subject, rather than the relative infrequency of these cases, that I desire to call your attention to the subject of their treatment.

This paper will only discuss the surgical treatment of what may be termed acquired incontinence of urine, and will deal in no way with the so-called infantile variety of the affection. Incontinence may follow traumatism of the neck of the bladder or urethra; we often meet elderly females, especially those who have given birth to several children, afflicted with incontinence of urine. In the latter case a traumatism may be incriminated as the etiological factor, but it is less evident, because the affection appears to become spontaneously established little by little. We will first consider incontinence of urine having a traumatic urethral origin, then spontaneous incontinence and, lastly, a third variety which appears to have a close relationship with uterine displacements or the presence of vaginal cicatrices.

Considering first incontinence having a traumatic origin involving the urethra, it may be said that the injury may have acted on the internal aspect of the urethra, a condition which is particularly met with in various cases of dilatation of the canal. This dilatation of the urethra may be a pathological one, produced by the passage of a calculus or a neoplasm.

The female urethra presents very little resistance to dilatation, especially when this takes place progressively from within outward, and it is readily conceived how a foreign body arising within the bladder may enter into the urethral canal under the influence of pressure of the bladder walls. If by chance this foreign body is of large size, it takes some little time to be expelled and if its surface is rough it naturally produces a traumatism of the inner surface of the urethra which may result in quite serious lesions. A tumor of the bladder provided with a long pedicle may enter into the urethra and if it requires some little time to dilate the canal it may produce an incontinence which will remain after the neoplasm has been removed. In the same way very large calculi may enter the urethra and there remain for quite a long period before being expelled. Under these conditions, the walls of the urethra will become injured at different points and according to the seat of the lesion the resulting incontinence may or may not persist. Should the calculus become arrested below the sphincter of the bladder it may either perforate the urethrovaginal septum or it may dilate the urethral walls at their lower aspect. If, on the other hand, the calculus should stop at the level of the vesical sphincter it will produce serious lesions which will persist for a long time and be the cause of a total incontinence, especially when the surface of the foreign body is rough or irregular.

Surgical dilatation of the urethra must also be considered in relation to pathological dilatation. It is often undertaken for the removal of foreign bodies from the bladder or for the purpose of diagnosis in genito-urinary or gynecological affections and this practice was very much in vogue for a number of years, but at the present time it is far less often resorted to on account of incontinence of urine which often follows it. Many cases of incontinence following surgical dilatation of the urethra could be mentioned but the reports given us by Estrabaud, Desnos, Emmet and others, are quite sufficient to show that it not infrequently results from this cause.

It is quite difficult to say what the exact lesions are which produce incontinence after dilatation of the urethra. Unquestionably, if there should be a more or less complete destruction of a part of the urethra, if necrobiosis should have taken place, it may be admitted that a portion of the muscular structures of the canal have been injured. But when no laceration can be found the surgeon can acquire little idea as to the nature of the productive cause. I would point out, however, that Emmet had the opportunity of performing a necropsy in a case of incontinence occurring after rapid dilatation of the urethra in which he found the muscular tunic of the canal forming a hernia through the lacerated mucosa. In another case, he found de visu the presence of a cicatrix involving several of the folds which border on the neck of the bladder. In both these cases, it is evident that lesions of the sphincter were present and it might be admitted that when lesions are less marked than in these two cases a submucous laceration of the sphincter of the urethra may have taken place, resulting in a cicatricial sclerosis.

A traumatism may act on the vaginal wall of the urethra and we consequently must consider incontinence following labor and incontinence resulting from the removal of vesical neoplasms or calculi by the urethra.

Incontinence following labor may arise under several conditions. In the first place, it is easy to conceive how the urethra or the neck of the bladder may be more or less violently injured by the forceps or manual operations during a difficult labor. It is needless for me to consider this aspect of the case and I will immediately pass to the study of the mechanism of incontinence of urine following normal

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labors. At the time of labor, the bladder may be empty and this is usually the case when the act takes place rapidly because the head of the child presses the walls of the bladder against the pubis. It is more especially the lower half of the bladder which is pressed upon by the fetal head and naturally it undergoes more or less pressure from this cause; the muscular layer of the bladder will afterward contract with less ease from which various symptoms arise according to the point of the viscus which has received the contusion. Retention of urine will result if the wall of the bladder itself is the seat of the contusion while an incontinence, usually only temporary, will take place if the pressure has been more marked in the region of the neck of the bladder. When labor has been protracted, when the head of the child has remained engaged for some time in the true pelvis, the bladder becomes filled with urine, rising above the pubis and then it is no longer the bladder that is compressed but the urethra and this pressure on the canal is all the more marked the higher it is drawn up by the ascension of the bladder. In all these cases, however, it is quite difficult to comprehend clearly the disorders produced at the vesical neck or the urethral walls.

In one case reported by Milne-Murray, this authority believes that pressure may produce a necrobiosis which will lead to the destruction of a certain amount of the muscular structures of the sphincter. Other authorities uphold that the walls of the urethra simply lose their elasticity and power of contraction and they deny the existence of laceration of the muscular structures. For convenience, however, it may be said that the lesions produced in labor may be classified under two heads, namely, those in which contusion has taken place resulting in a slight paralysis which gives rise to a temporary incontinence, and secondly, deep interstitial ruptures producing a permanent incontinence. I would only mention in passing, that numerous cases of incontinence of urine have been reported following the operation of symphyseotomy, some of which have been only temporary while others have been permanent.

As to incontinence of urine following vesical operations performed after dilatation of the urethra, it may be said that on account of the relative frequency of this complication following this modus operandi, the urethral route is now less frequently resorted to than formerly.

The mechanism is easily understood. An incision of the sphincter is necessary and although an immediate suture may oftentimes result in restoring the normal action of the muscle, this is not always the case and frequently after the wound is closed a cicatricial transformation arises which greatly diminishes, or even prevents, the proper functions of the cut muscle. The practical conclusion is that if the surgeon is desirous of removing a neoplasm or a vesical calculus by a vesicovaginal incision, he should take particular pains to carry the incision at a point low enough to avoid involving the sphincter. But I would add that such brilliant results are now obtained by the suprapubic operation that no man well versed in general surgical technic would probably resort to this tinkering at the present time.

Some women progressively develop an incontinence of urine when no former history of traumatism of a surgical or obstetrical nature can be elicited. It is especially in elderly women that this unfortunate affliction arises, occasionally at about the time of menopause. The urine will escape in large amount upon the slightest provocation. However, a total incontinence is rarely present and in these cases we are usually dealing with a weakened sphincter which has lost its resistence to such a point that it cannot overcome the vesical pressure. These cases are not of uncommon occurrence and are extremely annoying.

Whether or not the explanation may be found in a loss of tonicity of the sphincter appearing at a time when a general relaxation of the perineal muscles takes place or whether there is simply a decrease or an absence of the voluntary muscle fibers of the sphincter, which sometimes are replaced by a hypertrophy of the involuntary muscle fibers, is as yet an unsettled question, because, so far as I am aware, no histological examination relative to this point has as yet been undertaken.

In certain cases of uterine displacements, especially in prolapsus uteri, difficulties in micturition arise and I have frequently noted that incontinence of urine is a very early functional symptom of this condition. Without any question this incontinence is related to a former labor in cases where the prolapsus results from former obstetrical mishaps. In these cases those lesions already described might naturally be invoked as the cause of incontinence in the cases that I am just now referring to, but it should be pointed out that incontinence is quite as frequently met with in instances of prolapsus which slowly develop, accompanied by cystocele and rectocele, added to which there is a general weakness of all the muscles forming the pelvic floor.

In these cases a relaxation of the neck of the bladder and urethral structures must be incriminated, as well as the traction exercised on the urethra by the prolapsed anterior vaginal wall. This same action is also met with in women who present an ascension of the cervix uteri when the uterus is the seat of a fibroid tumor and in these cases we occasionally find the urethra pulled upward while the meatus is hidden deeply under the pubis; the latter is gaping and under these conditions it is not at all surprising to find that the patient suffers from incontinence.

The importance of a congenital development of fibrous tissue uniting the bladder and uterus very intimately, with marked anteversion of the uterus, setting up persistent incontinence, must never be lost sight of. The mechanism is practically the same as in the case of incontinence from upward traction of a fibroid uterus, but in the former

the subjects of the affliction are usually young, unmarried girls or women, who seek relief for this terrible infirmity and the remarkable results which may be obtained by the operation which I shall describe later on, will always be a blessing to these unfortunates. In other cases incontinence in young women and girls may be the result of the presence of fibrous bands which bind the neck of the bladder or the urethra to the vagina.

Under this same heading we should also include cases of incontinence of urine following the operation for the closure of vesicovaginal fistula, because, although in some cases it may be believed that the fibers of the vesicourethral sphincter have disappeared, in others it is distinctly proven that the cicatrix resulting from the obliteration of the fistula, drags on the urethra, holding it gaping, thus producing an incontinence in the same manner as other lesions already mentioned. One should also recollect that, after the radical operation for an old vesicovaginal fistula, there are other hindrances to the normal retention of urine within the bladder. The latter organ has lost its extensibility, is irritable and intolerant and in order to resist the desire to void urine the sphincter should be more powerful than under normal conditions, but it is exactly the contrary which takes place and from which results incontinence. This is only half the truth, however, because it is well known that after the closure of a suprapubic fistula the urethra preserves all its functions, which would go to show that, after the cure of a vesicovaginal fistula, the incontinence is largely due to the traction exerted on the urethra.

Considering now the surgical treatment for the relief of incontinence of urine, it will simplify matters if we classify the cases which resemble each other anatomically, disregarding completely the cause which has produced the lesion. In some cases the urethral canal is present in its entire length and after a superficial examination it would be quite impossible to say why there was incontinence, but in other cases there is a more or less complete destruction of the urethrovaginal septum which may even involve the neck of the bladder. The treatment will consequently vary according to whether the urethral canal is present or not and we will study first the manner of treatment when an abnormal traction on the urethra from a neighboring part exists; secondly, when the urethral canal exists, but with a more or less complete destruction of the sphincters; thirdly, when there is destruction of the canal with an intact vesical sphincter; and lastly, when there is destruction of the canal with loss of the sphincters.

In cases where an abnormal traction on the urethra is present the treatment will vary because this traction may be exercised by a uterus or a prolapsed vagina, or, on the other hand, it may be due to a congenital displacement of the uterus or a cicatrix situated on the anterior vaginal wall. It is at once evident to all that, in cases of prolapsus uteri, an appropriate treatment should be in the first place directed toward the latter condition without taking into consideration the bladder symptoms. It is not my intention to enter into a discussion of the cure of prolapsus of the female genital organs but I would say that when a properly conducted radical cure of this condition has remained without effect on the incontinence of urine, it is evident that there still exist lesions of the urethra or neck of the bladder which, however, do not enter into the class that I am now considering and to which I will revert further on.

If incontinence of urine is present along with a congenital displacement of the uterus, in antiflexion, for example, we are then dealing with a traction exercised upward and backward on the urethral orifice by the cervix. There will be found abnormal adhesions existing between the bladder and uterus and the rational treatment would naturally be to free the organs of these adhesions. This can be successfully accomplished by making a transverse incision over the anterior aspect of the cervix and then peeling the bladder off of the organ exactly as is done in vaginal hysterectomy. After the bladder has been thoroughly freed from the anterior aspect of the cervix, the wound is simply packed with gauze and allowed to granulate, so that the abnormal relationship between the organs cannot be re-established. This operation has given me two of the most beautiful surgical successes that it has been my lot to meet with. In both cases the patients were young unmarried girls who had suffered from incontinence of urine for a number of years. In each case every conceivable treatment had been tried without any relief and the cure was immediately obtained by the operation here described, showing that this etiological factor must never be overlooked.

When an incontinence of urine is observed after the operation for vesicovaginal fistula, an endeavor should be made to find the true cause of the former. By thorough cystoscopic examination of the cavity of the bladder, by ascertaining the capacity of the organ by passive distention, we can readily conclude whether or not we have a pseudo-incontinence due to a cystitis. By the use of the olive bougie the resistance of the vesical sphincter can be ascertained. Should these examinations remain negative, the surgeon will probably be right in concluding that bands of cicatricial tissue are present which drag upon the urethra, in which case the proper treatment would naturally be the prudent division of these bands and, if necessary, the separation of the bladder from the uterus, employing the same technic already recommended will probably be of great value.

In all cases, when present, fibrous or cicatricial bands starting from the urethra and extending in various directions, by the traction they produce on the canal, will cause incontinence, the radical and complete cure of which may be obtained by careful division of these bands as has been done with brilliant results by my friend, Dr. Gilliam, of Columbus, Ohio.

When the urethral canal persists with a more

or less complete destruction of the sphincters, the first thing to do is to examine the condition of the latter as well as their resisting force, and in order to ascertain this point the use of an olive bougie must be resorted to. If in passing the instrument, no resistance is felt, one may conclude that there is a considerable loss of muscle tonicity. In order to bring it back, electricity applied locally, combined with massage will sometimes restore the functions of the sphincter, if persisted in for a sufficiently long period. When, however, all hope of restoring the functions of the sphincter is lost, recourse to operative procedures is indicated. These may either act directly on the vaginal wall and on the urethra, or the operation may simply be applied to the latter alone.

In the first class of operations, all are similar to anterior colporrhaphy. For example, Engstroem removes a triangular flap of mucous membrane, its apex corresponding to the neck of the bladder while other operators have thought it better to remove a corresponding part of the urethral wall along with a bit of the vagina. Schultze excises an elliptical flap three centimeters long and one centimeter broad at its widest point while Winckel forms a wedge-shaped flap whose narrowest part corresponds to the mucosa of the urethra. Frank removes two flaps, the first of which is an anteroposterior cuneiform one, comprising the entire vesicovaginal septum, while the second is made transversely at the level of the posterior urethral orifice, that should only include the vaginal mucosa.

Among the second class of procedures may be mentioned the transversal and longitudinal folding of the urethral mucosa, torsion of the urethra and traction upon it with elevation of the meatus. Transversal folding has been done by Desnos as follows: a longitudinal vaginal incision is made over the urethra, the canal is then dissected out and a large catgut ligature is passed around it. After having introduced a No. 15 catheter the ligature is tied and a kind of circular valve is thus formed.

Longitudinal folding of the urethral mucosa may be either done on the anterior wall of the canal or on its lower wall. In the first method the urethra is dissected on its upper aspect underneath the pubis and then a longitudinal suture is inserted on its external wall so that a fold is formed which projects into the lumen of the canal, extending up to the meatus. In the second technic, the urethrovaginal septum is incised longitudinally and two lateral flaps are formed and after having brought them together in the median line they are united at their base. The circumference of the urethra is thus decreased and a median inferior urethral crest is formed.

Torsion of the urethra was first employed by Gersuny with the aim of forming a series of obliquely spiral folds, dovetailing each other. The meatus having been circumscribed by a circular incision, the urethra is dissected backward for about two centimeters. A suture is then placed opposite the upper pole of the canal which is then twisted on itself until an angle of 180° is formed, then the parts are sutured in this position after the introduction of a fine bougie has assured the operator that the lumen of the canal is not completely obstructed.

Instead of decreasing the caliber of the urethra by the formation of projections within its lumen, endeavor has been made to retain the walls in close permanent apposition by bending the urethra under the lower aspect of the pubis.

To accomplish this the urethra must be elongated and the meatus should be united at a point much higher than its normal situation. At the same time it is well to decrease the caliber of the meatus which may be transformed into a transversal opening. This was first done by Pawlick and later on Duret improved the procedure successfully. It is not to be wondered at that in order to obtain a more perfect result torsion and traction have been combined. It is not necessary to describe the technic in this instance since it can easily be guessed at from the description already given of the other two procedures.

To sum up, it may be said that when there is destruction of the sphincter with persistence of the urethral canal, the operation may be simply a colporrhaphy, alone or combined with an elevation of the meatus. I would point out that it is better not to open the urethra because the formation of fistulæ is to be feared and should the urethral walls be thin torsion should not be undertaken.

When incontinence of urine appears to be due to a more or less complete destruction of the urethral canal, the rational indication is to repair the urethra and replace the organs in the situation and relationship that they normally occupy. When bits of mucosa or strips of tissue susceptible of being utilized are still present, they should be used in reconstructing the canal. When, on the contrary, and this is the usual case, no bits remain or when these are either too small or too thin, an autoplastic procedure must be employed for making the new urethral canal. If the loss of substance is situated far forward, the labia minora may be utilized, but if the injury is further back, flaps may be made from the vesicovaginal septum or simply from the vagina. If the entire urethra is destroyed, flaps must be obtained from both the vulva and vagina.

All these various procedures have given good results but in order to be successful a large amount of patience is required by both patient and surgeon. Often the operation has a most successful immediate issue but the ultimate result is far from ideal. Either the sutures have become lax or small secondary fistulæ are formed at the points of sutures. In order to obtain a cure very large flaps should be cut, so that the new canal will have very thick walls which, when sutured, will not be pulled upon by the surrounding parts. It is more than useless to try to accomplish everything in a single operation and the patient must submit to several interventions. In

each one the least possible dissection should be made and if the surgeon will make up his mind as to the absolute necessity of small, successive and uncomplicated interventions, a complete restoration of the destroyed urethra will be made, even if the incontinence of urine is not completely controlled.

Local treatment of the bladder and progressive distention of the viscus, prolonged electrization of the sphincter, are necessary in order to bring about a complete cure.

Two procedures of entirely different nature may be resorted to when both the urethral canal and vesical sphincter are destroyed. Starting on the principle that after restoration of the urethra has been accomplished, the absence of the vesical sphincter may keep up the incontinence of urine, certain operators have discarded autoplastic operations and have simply made an artificial meatus which is easier to control than the original fistula. Naturally, suprapubic cystostomy is at the present time the operation of choice, but after this operation continence is infrequent, so that I can hardly commend this method. It is well known that suprapubic cystostomy performed on prostatics has, in some cases, resulted in absolute continence, but it is safe to say that the contrary is usually the case.

When destruction of the urethra and neck of the bladder co-exists, I believe it should be the duty of the surgeon to direct all his efforts towards restoring the urethra and if a canal sufficiently long be made, if its caliber and the thickness of its walls are sufficient, the incontinence will be much diminished and a considerable improvement will be obtained. If, however, the affliction continues, palliative methods must be resorted to, such as urinals and various forms of pads which compress the canal. All these means are naturally very unsatisfactory but when all surgical methods have been tried, one must be content with any method which may relieve the infirmity.

SOME SUBJECTIVE HINTS OF THE MORPHINE HABIT.

BY WILLIAM LEE HOWARD, M.D.,
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WHILE both objective and subjective symptoms are clear and incised enough in the morphine victim to make positive a diagnosis, the few subjective signs in the very early stages of the use of the insidious drug are not always to be detected by the practitioner, and seldom by the user's most intimate friends or relations. The husband, the father or mother may have one loved living in the family circle who is approaching that period when secrecy becomes impossible and cure questionable, yet whose increasing dependence upon morphine is never suspected.

An appearance of slight ill health, irritable and unreasonable conduct at times, intestinal disturbances, or loss of appetite with anemic indications, will cause the victim's friends to have her consult a physician. Now is the time for all the latter's intuition and mental notes of experience to be active. If the consultant has had his wits sharpened by the manifold subterfuges and masked confidences of neuropaths, he will hesitate before making any diagnosis in these alleged cases of a "general run down of the system." In dealing with the beginner in the use of the drug he must recognize that the neuropath is yet only in the grasp of one of the tentacles of this octopus, and now is the time to tear away forever this sucker of morals whose fascinating embraces breathe wily stratagems and golden promises.

If, after carefully considering the physical symptoms as told by the patient, and especially the details of life and conduct as seen by her intimate friends and family, and by close questioning and examination, you find no rational cause for the general systemic disturbances, you are justified in suspecting the use of morphine, but that suspicion must lie so hidden, that not by sign, look or word could the acute watcher and observer—for such she will be—gain a hint to your thoughts. This attitude is necessary to accomplish your ends and to render all justice to the patient should your suspicions prove erroneous.

The patient should be treated for the distressed feeling she complains of, letting her understand that this treatment must continue for several weeks. This understanding is necessary if you wish to get at the truth.

Laying considerable emphasis upon the importance of seeing her at a certain time, make an appointment the next day for an early hour. If it is in the afternoon that you have had your first consultation—and such will probably be the case—watch carefully the conditions existing in your patient—the restless attitude, the inclination to talk upon subjects foreign to her symptoms, the furtive glances and the eyes generally. Are the latter bright, and do they harmonize with her words and actions? Is she voluble, sanguine, and apt to consider her distress of minor importance, and say she feels "much better to-day"? An appointment for the next day she readily promises to keep to the minute, and if you have well acted your part the patient leaves your office feeling confident that she has "fooled another doctor." On the next day the appointed hour passes, and noon arrives with the patient hurrying into your office with her cheeks flushed, and she at once pours out voluble excuses for her tardiness. The excuses must be accepted with every appearance of belief. Again notice the general attitude of the patient. It may or may not vary in degree from that noticed the day before, but the treatment must be the same.

Now comes in the astuteness of the consultant: he must find out without causing suspicion what her conditions are in the mornings. Does she eat a substantial breakfast? Is her appetite wanting; or is it capricious? Is she irritable and dilatory about making her appearance, drowsy and diffi-

cult to arouse, but when ready to leave for her engagements, voluble and sprightly? All, all these apparently minor facts must be well considered.

The third day she is again late, later than she was in keeping the first engagement, but remarks that she had no idea she was so much behind the appointed time. Now is the time for clever dissembling on the part of the physician. Let him appear at her house the next morning at a reasonable hour, with the excuse that he could not keep the office hour, and, not wishing to have the day pass without seeing her, he called. He will probably be told that she is not down. "Will he wait?" Yes, he will wait, and should he be detained a half hour and then see his patient appear with every evidence of a hasty and careless toilet, moist skin, pale face and vapid, filmy eyes, he may satisfy himself that he is on the right track. He will not be able to keep his patient long, for the small "shot" she has taken is not sufficient to enable her to control a feeling of fear and weakness, and she will in a nervous and irritable manner ask him to excuse her. After this occasion the observer must see her under different circumstances; at night, at a period when she is self-controlled—or rather drug controlled—mentally bright, and on her guard. When this condition is contrasted with those seen in the mornings, the experienced observer cannot fail to recognize the great psychic change. Let him now watch for verbal contradictions, exaggerated statements, and, sometimes, erotic tendencies, for now the evening physiologic rhythm is controlled by the influence of the drug. Make another engagement for an early hour, and when it is not kept you will realize how impossible it is for these cases to ever recognize the value of time or promise.

Objections, naturally, will be made when one advises using such factors as late rising in the morning, drowsy appearances or unfinished toilets, as diagnostic factors. Among our mental workers and devotees to society such conditions are almost universal, therefore what value can be placed upon such conditions? No value at all, taken alone, but taken as gradual changes from former habits, accompanied by decided psychic and moral evolutions, they have decided value.

To place and analyze such changes; to eliminate physiological causes, psychic shock, irritating environment, etc., is no easy task, yet a necessary one in making a diagnosis. Upon the statements of the intimates of the patient much depends, yet one must be always on guard as to the motives of such friends. A history of uncontrolled impulses in childhood is an important matter, as it shows a neurotic basis. If all accounts agree that the morale of the patient is gradually changing, that where she was formerly truthful she is now careless of her statements, that she makes engagements and promises which are not kept, that her sense of relation and duty to others has become dull and her ego exaggerated, we can come to the conclusion that we are dealing with a user of morphine.

Up to this point we have been given a clue as to the cause of the subjective symptoms complained of by the patient and family. The further facts which the physician will want before hinting his suspicions to the family, are not easily gotten. He will want to know where she purchases her drug, and how she uses it. Taken alone, the appearance of the eyes has no value. So expert have these morphine victims become in the use of atropine that the condition of the pupils tells little. You may ask for the urine and expertly examine it for the crystals, only to find later that you have examined the maid's urine; as once happened in a case of the writer.

I have in the above remarks only lightly touched upon some of the problems entering into the early diagnosis of the morphine habit. It seems almost surplusage to make any remarks concerning the absolute unreliability of statements made by the patient herself. One of the first effects of morphine is to destroy the responsibility of the ego; to submerge the individual's recognition of her place in the world, to make her purblind to the difference between *meum* and *teum*, or to allow her to ever get away from the powerful influence which constantly focuses the mental energies on the self.

THE HEMORRHAGIC DISEASES AND THEIR ALLIES IN THE LIGHT OF MODERN PATHOLOGY.*

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The customary inclusion of the hemorrhagic diseases among the blood diseases is most unsatisfactory, for, in so broad a sense, these may be held to include nearly all the infections, intoxications, and errors of metabolism, approximately one-half of the field of internal medicine. Many recent authors, like Litten,[1] group these affections into a class by themselves, on the common basis of the symptom of hemorrhage. We shall see that this classification is far from meeting modern scientific requirements; these diseases do not even agree in the cardinal symptom, as will be presently shown; in other respects some of them differ so widely and profoundly, as to present scarcely any points of contact whatever.

Our study will be best begun with a brief discussion of the nature and causation of spontaneous hemorrhage. Cohnheim[2] and Arnold[3] showed that it is caused by a yielding of the intercellular cement of the vascular wall resulting from impaired nutrition, in many, but not all cases, favored by a local rise of blood pressure, which is regularly due to a thrombosis. The question naturally arises, whether the malnutrition or the thrombosis is the primary factor,

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and here the authorities disagree; Von Kogerer[4] declares that the thrombosis is secondary to the vascular degeneration, whereas Silbermann[5] claims that the impairment of the vessel wall is the result of the thrombosis and the consequent rise in the intravascular tension. As we go on to consider the various hemorrhagic diseases seriatim, we shall find support for both views, neither seeming to obtain universally. Aside from the stated question, however, one fact stands out clearly; degeneration of the vascular endothelium must follow either a deficient food supply or the presence of a poison in the blood, and experience has shown that these two factors always coexist. It will, therefore, be necessary to proceed at once to the consideration of poisons in general and blood poisons in particular.

Poisons, in the popular sense of the word, may be classified along two lines. According to their origin, we distinguish between poisons derived solely from the body tissues, and such as are either directly introduced or are secondary to the introduction of a foreign substance; thus we have endogenic and exogenic intoxications. According to their biochemistry, we observe two very different modes of action on protoplasm, requiring a somewhat extended description.

It is easy enough to understand the effect of an ordinary chemical poison. If corrosive sublimate, for instance, be brought into contact with living cells, it will form a firm combination with their protoplasm, rendering it permanently incapable of performing its physiological functions, in fact, divesting it of the properties regarded as specific to protoplasm. The process of cell destruction continues until all the molecules of the poison have entered into combination, at which point it ceases; but, if the organism as a whole survive, and a fresh quantum of the same poison be introduced, a new series of cells will be affected exactly as those before, the first intoxication having conferred no immunity to subsequent administration of the same noxious agent. Poisons of this class are notable for destroying protoplasm wherever encountered.

A subdivision of the chemical poisons consists of those substances which form only a loose combination with protoplasm, a sort of external attachment, easily broken up or neutralized. These poisons are selective, choosing some animal cells and ignoring others, not permanently destroying the protoplasm, but causing merely irritation or inhibition. In time, in certain cases, the cells may become habituated to a substance of this class, and refuse to be affected by it; but we shall see that this loss of chemical affinity bears no resemblance to an acquired immunity in the true sense, a radically different condition. To the above subdivision belong the alkaloids and their allies, the ptomains.

The poisons of the second class, called toxins, differ widely from all the preceding. In the first place, they are proteids, therefore not entirely foreign bodies, but akin to the cell foods; like them, they are absorbed by the protoplasm and give rise to cell metabolism, differing from the true foods only in that they damage the cells. Ehrlich's[6] ingenious and now generally accepted theory of this process is as follows: In the protoplasmic molecule there is a "side chain" of proteidophile atom groups called "receptors"; when a toxin molecule becomes attached to such a receptor, new receptors are segregated from the protoplasm; as toxin absorption proceeds, the new receptors are formed in an increasing ratio, and, when their number becomes excessive, are finally set free, ready to attach themselves to further toxin molecules before these can reach the cell receptors. As soon as the free receptors are sufficiently abundant fully to protect the cells, we obviously have the whole tissue rendered immune to that particular toxin; these free receptors are then the "immune bodies," in popular language the "antitoxin." It is this production of immunity which constitutes the essential difference between the respective actions of ordinary poisons and toxins.

We may now transfer the above phenomena to the blood. As to the chemical blood poisons, we must consider separately a group having a specific affinity for the red blood cells, namely, the hemoglobin poisons. Potassium chlorate is an excellent example of this series; it causes a firm oxidation of the hemoglobin into methemoglobin, but the discoplasm of the erythrocyte as a whole does not become disintegrated until the process has advanced so far as to impair its nutrition; only then is the methemoglobin discharged into the blood plasma. The same effect is produced by the entire nitro-group (the anilin derivatives, nitrites, etc.), and analogous changes follow poisoning with sulfureted hydrogen, cyanogen, carbon monoxid, sulfonal and so on. In all these cases, in the early stages at least, before the cells break down, any spontaneous bleeding must be caused by simple malnutrition of the endothelium, conditions favorable to thrombosis not being present; we have seen that these poisons attack the hemoglobin exclusively, thrombosis requires agglutination of the blood cells, and this can occur only when the discoplasm is attacked as a whole.

Apart from the hemoglobin poisons, the chemical blood poisons present no especially distinctive features. When the blood cells as a whole are attacked, agglutination takes place, we have then thrombosis with its increased local blood pressure, extravasation can readily take place. As to the effects of the alkaloids and ptomains, as suggested, some, like quinine, seem to affect the blood alone; others, like atropine, attack the blood as well as other tissues; a third group, like morphine, have little or no action on the blood cells.

Finally, it will be best to speak of all the chemical forms of blood cell destruction as "blood dissolution," for I think that the term "hemolysis" should be reserved for the process caused by the toxins. Thus, much of the existing confusion in nomenclature can easily be obviated.

Recent investigation has shown that the action of the toxins on the blood cells is somewhat complicated. Ehrlich and Morgenroth[7] showed that the hemolysis caused by the injection into the blood of a foreign serum depends upon two components. The former, a stable "immune body," unites with the cell receptors of the host, causing agglutination, but no further injury. It is the latter, an unstable substance, the "complementary body," which actually destroys the cells, but would be incapable of so doing, were not the receptors first fixed by the immune body as "intermediary body" or "amboceptor." The amboceptor must be introduced from without, but the complementary body is not necessarily of foreign origin, and may be supplied by the serum of the organism attacked; thus, the essential step in producing hemolysis is the introduction of a toxic amboceptor, the determining factor in the process, though not, as we have seen, the actual "lysin." The relation between hemolysis and immunity thereto is plainly reduced to a matter of the respective affinities of bodies of the receptor type.

A foreign serum from a different species produces "heterolysis," one derived from another member of the same species "isolysis," less intense, as would be expected. "Autolysis" would, at first glance, appear impossible, and at one time its existence was strenuously denied; its occurrence, however, has now been demonstrated beyond question, and we shall presently have occasion to observe its great pathological significance.

Snake venom may be regarded as the type of a blood toxin; Flexner and Noguchi[8] showed that, after reduction to a mere agglutinin by destroying the complementary component with moderate heat (56° C.), its full hemolytic power is restored by adding any normal serum to supply that body afresh. I might mention, in passing, that its action on nerve cells was found to be relatively feeble, contrary to the popular belief, immunity being rapidly acquired in that tissue, while in the blood, on the other hand, the extreme intensity of the venom makes the acquisition of immunity far more difficult, large doses destroying the cells far more rapidly than new receptors can be liberated.* Among other blood toxins that have been found in the animal and vegetable kingdoms, I mention merely abrin, ricin, and, above all, the bacterial products, such as tetanolysin, staphylotoxin. The action of all these substances has proved so far identical, except in degree, as to give rise to the opinion, also sustained by experiment, that there is but one kind of lysin complement; the newest researches, however, seem to prove that such is not the case (Ehrlich and Marshall[9]).

The Autogenic Hemorrhagic Diseases.—In considering the autogenic hemorrhagic diseases, we may begin by taking up the subject of autolysis at the point where we temporarily dropped it. Within certain limits, in view of the constant destruction of blood cells going on in the circulation, it is probable that a process that must be called autolysis is normal, and becomes pathological only when unduly accelerated. Such acceleration may be caused by the resorption of amboceptors from within the body, the most available source being an internal hemorrhage. As a matter of fact, Grawitz[10] did observe degeneration of the blood cells under such circumstances, but the rapid formation of immune bodies would obviate extensive destruction by autolysis from this cause. In a severe or continuous autolysis it will be necessary to look for some form of internal secretion of amboceptors as the result of a perverted metabolism, or for the retention of amboceptors that should be excreted. Let us assume, that large quantities of such amboceptors, *i.e.*, auto-agglutinins, are being continuously resorbed into the blood: in this event there will be a constant liberation of anti-auto-agglutinins, with a result beyond the mere inhibition of hemolysis. For, if we refer to the familiar process of the coagulation of extravasated blood, and regard the fibrin ferment, as we must, as consisting of a zymophore complement and an auto-agglutinin, the latter mostly derived from breaking down of leucocytes in the course of extravasation; it is plain that, when the blood is already fully charged with anti-auto-agglutinins, the first step in coagulation will be interfered with, and the fibrin-forming complement cannot be activated. The blood will then continue to exude without clotting, giving us the clinical picture called Hemophilia.

Before discussing this new theory of hemophilia, we may briefly look back at the older views. Our ignorance on this subject was so profound, that we could not even say whether we were dealing with a true disease or an error in development; the hereditary and congenital features made the latter view very tempting, though nothing was really explained thereby. W. Koch[11] considered it a bacterial infection, but his view is hardly tenable; his evidence is very imperfect, and I shall show his assumption of identity with scurvy to be entirely erroneous. Resting on certain observations of Virchow,[12] Immermann[13] proposed an explanation, that has gained wide acceptance. He claimed that the essential lesion is a congenitally arrested development of the blood vessels, which are thus incapable of resisting even a moderate increase of the intravascular tension. It will suffice to point out two flaws in this theory. First, an exactly similar maldevelopment of the vessels occurs without any hemorrhagic diathesis; secondly, the failure of the blood to coagulate remains unexplained. I must not fail to emphasize the fact that the characteristic symptom of hemophilia is not spontaneous bleeding, as so often assumed but never yet demonstrated, but defective coagulation, as before stated. Blood analyses have

*Tetanotoxin is another conspicuous example, in another tissue, of a toxin so intensely destructive as to make even artificial immunization almost impossible. Similarly, immunization to the toxin of diphtheria would often fail without artificial aid, which, in turn, must be administered promptly to be effectual.

shown no want of fibrinogens, *i.e.*, agglutinins; the failure of the extravasated blood to form rouleaux is, of course, due to absence of agglutination. Alex. Schmidt[14] did cause hemophiliac blood to clot promptly by adding what he called a "zymoplasma"; in the light of modern research this "zymoplasma" undoubtedly contained foreign amboceptors, against which, naturally, an anti-*auto*-agglutinin would be powerlesss. Under the new theory, Schmidt's experiment should furnish the clue to a rational plan of treatment.

The failure to acquire immunity is the corollary to our theory of hemophilia, as the disease itself is a pathological immunization. Two difficulties present themselves for elucidation: first, the source of the original agglutinin; secondly, its constant production throughout life. As to the former question, we are in position to furnish a parallel, presently to be referred to; as to the latter, we cannot so far give a perfect analogy. Though we know of other internal secretions, producing pathological changes, that are both congenital and continuous, such as those causing cretinism and obesity, we cannot instance them without a certain reservation. Arguments based on premises so little understood are apt to involve serious fallacies. With regard to normal secretions of this type, we are not at a loss; the digestive fluids are in every way sufficient instances.

Returning to the first question, we have in obstructive icterus an auto-intoxication that presents a blood condition practically identical with hemophilia except as to permanence. Grünbaum[15] demonstrated the presence of agglutinins in the blood in jaundice, as evidenced by its action in cultures of the typhoid bacillus; such formation of agglutinins we know to require absolutely the presence of a toxin, as before stated; the bile being an internal secretion, the auto-toxinemia in icterus must be regarded as a settled fact. If the biliary obstruction and resorption continue for any space of time, an extensive production of anti-auto-agglutinins is inevitable, the resemblance of the mysterious idiopathic hemophilia to the readily comprehended icterogenic hemophilia is most striking and convincing. If Ehrlich's theory has any merit at all, the causation of hemophilia here outlined is not likely to be effectively controverted.

A few words as to the older theories of the blood changes in icterus, now practically obsolete. Rywosch[16] caused blood dissolution by the injection of large doses of the bile salts into the circulating blood; excessive quantities interfered with coagulation. This picture differs rather widely from that of hemophilia, whether idiopathic or icterogenic, for in the latter variety, as in the former, we have no evidence of any especial blood cell destruction. Moreover, as Quincke[17] points out, Rywosch's doses of the bile salts are larger than can possibly be encountered in the most intense icterus.

Lest I be misunderstood, let me mention, in passing, that cholemia, in which hemolysis or blood dissolution does occur, is by no means a simple bile poisoning; it may, indeed, be attended with little or no jaundice, and is, in fact, more akin to uremia, a mixed type of auto-intoxication, in which ptomains probably play the leading rôle. For obvious reasons I have here taken care to exclude the infectious forms of icterus from consideration.

The Scorbutic Diseases.—We now proceed to another group, including scurvy and its infantile variation, Barlow's disease.* In scurvy, in the course of a progressive cachexia,† we find extensive destruction of the blood cells, indicated by marked oligocythemia and oligochromemia; the bleeding is largely spontaneous, there is no very demonstrable failure of the blood to coagulate, a picture quite different from that of hemophilia.

There is, of course, no lack of theories, the weakest being again that of a bacterial infection, whose ablest sponsors (Babes[18]) do not seem to be fully convinced by their own very incomplete evidence, there being none, for instance, showing communicability. Wright's[19] theory of an acidosis has a better foundation, since the chemistry of the scurvy-producing diet points in that direction. The American Collective Investigation of Infantile Scurvy[20] proved that this disease is regularly associated with an unsuitable food supply, and disappears under a correct regimen. Experience had long ago led to the belief that an exclusive diet of certain artificially preserved foods is the primary cause of scurvy; in the abovementioned investigation, and in the recent discussion on Barlow's disease in the Berlin Medical Society[21] that fact was established beyond a doubt; evidently, under the circumstances, bacterial action cannot come into play, the deleterious change in the food must therefore be a chemical one. Further proof, that the scorbutic diseases are a form of chemical poisoning, is adduced by the very old and correct observation, that a simple change in the dietetic chemistry, namely, the addition of salts of the organic acids, is rapidly curative; it is also interesting to note how closely the symptoms of scurvy resemble those of chronic mercurialism. Incidentally, all observers agree, that anything like original or acquired immunity is conspicuously absent; this fact supplies further corroboration as to the type of intoxication presented.

Of the precise nature of the scurvy-producing poison we can as yet say little. In this case, as in others, the convenient designation of "ptomain" has been brought in to label our ignorance; as no ptomain whatever has yet been demonstrated, this view for the present must remain a mere guess. A possible theory rests on the old opinion of Garrod,[22] that a deficient supply of the organic salts of potassium causes scurvy, a sort of argument ex juvantibus; thus the cells would break

* The practical identity of scurvy and Barlow's disease is now generally admitted (21).

† Cachexia is in effect only the clinical expression of a chronic progressive blood cell disintegration, as seen, for example, in the "pernicious anemia" picture of the blood in carcinosis; analogous changes in the other tissues can hardly be of equal importance to the organism as a whole.

down from a kind of starvation, more accurately, perhaps, from an auto-intoxication by their own faulty metabolism. We are also bound to infer that the important salts in the food undergo the deleterious chemical change either through prolonged heating in contact with the food proteids, or through antiseptics employed in food preservation; both kinds of sterilization having been productive of scurvy. Although Garrod's theory as amplified remains purely empirical, it seems, nevertheless, to be the best we have; it is more than likely that we are dealing with a characteristic auto-intoxication due to an abnormal tissue chemism, a suitable readjustment of which promptly causes a cessation of the morbid process.

Where does scurvy belong in our general system of pathology? Evidently not to the type represented by hemophilia; on the other hand, it presents a considerable resemblance to a well-known non-hemorrhagic disorder. Referring, once more, to the infantile variation bearing the name of Barlow, we note that the discoverer himself regarded this affection as an acute form of rhachitis;[23] some authors still approve of this designation, but Ziegler's investigations[24] show a number of differences between the two, the chief being that in Barlow's disease the bone marrow is most implicated, in rachitis the periosteum. It must be conceded, however, that there are many evidences of relationship. The etiology of both is, after all, similar, namely, an unsuitable regimen; both also are successfully treated along similar lines, the causal indication being met by correcting the diet.* The more rapid result in scurvy is merely a repetition of a usual difference between acute and chronic diseases. It seems to me that scurvy and rickets unquestionably belong in one class.

The Exogenic Hemorrhagic Diseases.—The exogenic hemorrhagic diseases are readily divisible into three sections, on the basis of etiology, as we are here on fairly firm ground. The most rational and convenient division is into: (1) Chemical blood poisoning; (2) non-infectious toxinemia; (3) infectious toxinemia.

Chemical Blood Poisoning.—We have seen that there are numerous chemicals capable of causing blood dissolution and spontaneous hemorrhage; as I have already treated the subject somewhat in extenso, I shall discuss it now only in its relation to other groups. Toxic purpura, as I must designate this type, has been in a great measure surrendered to the dermatologists; a little excursion into their domain will furnish some data to aid us in the discussion to follow, provided that we employ them with that reserve, which deductions from poisons to toxins ought always to call for.

We have a characteristic series of blood poisons in our new friends, the antipyretics of the anilin group, of which acetanilid is an excellent representative; the liberal administration of these drugs has supplied us with a mass of invaluable toxicological material. Acetanilid, being a nitro-body, acts by converting the hemoglobin into methemoglobin, with the ultimate possibilities before stated. The cutaneous manifestations of poisoning with this substance consist in a great variety of dermatoses, the chief interest for us lying in the thereby demonstrated relationship among these eruptions. Most frequent are the erythemas, morbilliform and scarlatiniform, often becoming purpuric, in a smaller proportion vesicular, *i.e.*, herpetic or pemphigoid; very commonly the rash presents the appearance of an urticaria or the so-called angioneurotic edema, which, by the way, is neither neurotic nor an edema; for it is primarily of hemic, not of nervous origin, and does not pit on pressure; it is not the result of a venous stasis, but an inflammatory exudation.

At the commencement of this essay, I called attention to the difference between cell destruction and the impairment of cellular function by chemical poisons; in the blood these two processes are admirably illustrated by the respective actions of acetanilid and quinine, which produce symptoms clinically almost identical. Binz[25] showed that quinine interferes with the normal oxygenation of the hemoglobin, eventually resulting in the death of the erythrocyte. In the case of acetanilid the oxygenation is replaced by a firm oxidation, with the same ultimate consequence. Thus we see the same effect produced in two entirely different ways by two hemoglobin poisons; the greater gravity of acetanilid poisoning being inevitable from its effects being permanent.

The Non-infectious Toxinemias.—At the beginning of this paper I gave an outline of the action of the most typical and powerful of the blood toxins, namely, snake venom, and at this point shall merely add, that the various similar animal secretions, notably the venom in the bites and stings of insects, differ from it chiefly in degree, and that only apparently, if we consider quantitative relations. All these insect toxins produce urticaria, some even purpura; natural immunity is frequent, to acquired immunity all the residents of our mosquito infested swamps will readily testify. There is no occasion here to pursue the subject further.

Among vegetable toxins, we may, with some positiveness, place the noxious principles of nettles and poison ivy (Rhus radicans L.). Investigations in this direction are still needed, but the well-known frequent immunity to poison ivy is highly suggestive. In this connection the researches of Dunbar[26] are of the greatest interest and import; the pollen of certain grasses, golden-rod and ragweed are shown to contain toxins, producing in the symptom group of hay fever a characteristic intoxication of the urticaria type.

From the facts presented in the last two chapters, the conclusion is inevitable, that spontaneous hemorrhage, by itself, forms a most unsatisfactory basis for pathological classification. We

* Personally I have had no startling success with phosphorus in rachitis, and have always observed that the most ardent defenders of this most unpleasant drug have been the most insistent advocates of sound dietetic measures.

have found it impossible to draw a line between this symptom on the one hand, and certain erythemas, urticaria and herpes on the other. The evidence is overwhelming that all these correspond only to different degrees of the processes of blood dissolution and hemolysis, and we shall obtain further corroboration of this point in the chapter on the infectious toxinemias.

Before passing on to that branch of the subject, however, let me give a brief résumé of the theories of urticaria. Unna[27] attributes urticaria to a series of local venous contractions with secondary stasis and "edema," the unaccountable non-edematous character of which he seeks to explain away by calling it an "elastic edema." Now, in addition to this evasion, his theory includes at least two errors. First, there is no passive hyperemia present to cause edema; secondly, the author ignores the admirable provision for collateral circulation in the skin. Heidenhain[28] more correctly considered the exudation to be due to an inflammatory production of lymph, with increased activity of the vascular endothelium, caused by poisons in the blood. In addition, Philippson,[29] by injecting atropine and other blood poisons into the circulation, demonstrated that erythema and urticaria are both of hemic origin, differing solely in degree. Of especial interest to us is the observation of Ferré and Lamy, cited by Barthélemy,[30] that a temporary immunity to an urticaria-producing substance may be acquired through its repeated administration. These investigators attributed the phenomenon to exhaustion of the vasomotor nerve ends, but Ehrlich's theory now seems to afford a far better explanation.

The Infectious Hemorrhagic Diseases.—All the infectious diseases may be attended with hemorrhagic symptoms, not a very surprising circumstance considering that they are all more or less toxinemias. In typhoid fever and diphtheria hemolytic symptoms are relatively rare, in the exanthemata and the septic diseases they are more frequent, their intensity being usually fairly commensurate with the severity of the infection.

The so-called exanthemata, measles, variola, scarlatina, on the one hand; and the septic diseases, typhus fever, streptococcemia and rheumatism, on the other; have many features in common. Some authorities, indeed, would consider scarlatina, rheumatism, and ordinary sepsis mere variations of one form of infection; so far, however, most of the evidence is against them. The absence of reciprocal immunity and the failure of the anti-streptococcus serum in scarlatina* are decidedly adverse arguments. All that can be claimed, for the present, is that these affections have a marked resemblance to one another in their general symptomatology.

The infectious character of acute articular rheumatism has been suspected for many years, but only within the last decade has this view gained general acceptance. The type of fever, the occurrence of epidemics, the metastases, and last, but not least, the success of internal antisepsis, establish this theory quite firmly; all that we now require is the demonstration of a specific germ, and here, unfortunately, confusion still reigns. It must be admitted however, that the discovery of bacteria in the circulating blood is not necessary, they are not to be found there in some forms of unquestionable sepsis; we know that a toxinemia alone will produce all the observed symptoms, the presence of free micro-organisms is not essential. Various observers have found various germs in rheumatism, including those of ordinary sepsis. The increased coagulability of the blood and the marked anemia attendant on this disease have been noted for centuries, and in our time verified by the modern methods; Bussenius[31] demonstrated agglutinins in the blood; thus we have ample evidence of hemolysis.

The old view, that acute articular rheumatism is a specific joint affection, has been abandoned; we are now in position to say that this lesion is only one of the metastases of a systemic infection. Passing by endocarditis and pericarditis, I shall say a few words concerning certain less generally accepted phases of rheumatism. Amygdalitis is quite frequent in the course of rheumatism, and we have every reason to believe that many anginas occurring independent of articular inflammation are, nevertheless, rheumatic; endocarditis has repeatedly been observed to follow amygdalitis uncomplicated with any joint symptoms.

Muscular rheumatism has given the pathologists no end of trouble, at present, however, the opinion of Leube[32] is rapidly prevailing; namely, that acute polymyositis, including many cases of less widely disseminated muscular inflammation, is usually, if not always, truly rheumatic. The following clinical facts support this view. First, we occasionally see the combination of articular and muscular inflammation; secondly, there is the experience of many observers (Cheadle, Still[33]), who, like myself, have seen typical rheumatic endocarditis with chorea, in children who have suffered from appreciable joint pains, but have presented only a moderate muscular soreness and tenderness ("growing pains"); thirdly, we note the ready response of acute muscular rheumatism to the salicylates; lastly, we have the parallel between the nodes of rheumatic myositis and the subcutaneous nodules first described by Hillier[34] in the course of the articular affection.

In the case of chorea, the relation to rheumatism has become more and more generally accepted since the publications by Romberg and Henoch in 1846: the combination of rheumatism, endocarditis and chorea is so familiar that a detailed discussion in this place would be superfluous.

I have reserved the rheumatic lesions that will interest us most for the last; I refer to the dermatoses of rheumatism. In addition to the nodes of Hillier, these include various erythemas, herpes,

* I am aware that the authorities here disagree, sometimes violently; see the not very edifying discussion (Berl. klin. Woch., 1902 No. 52 et seq.)

urticaria, and the Peliosis rheumatica of Schönlein a most suggestive array in view of the preceding chapters.

The mere mention of Peliosis rheumatica recalls a maze of controversy only now being straightened out. Peliosis rheumatica is one of a series of disorders forming an old scientific battle ground, yet the matter in dispute seems to admit of easy adjustment. It has been customary to name the following clinical types: purpura or peliosis rheumatica, purpura simplex (without joint symptoms), purpura hemorrhagica (with internal bleeding), erythema multiforme, and erythema nodosum, not to speak of minor variations. This cumbersome scheme may readily be simplified. In the first place, we can rule out purpura simplex, which we have seen to be merely a symptom, attending the most diverse intoxications; purpura hemorrhagica is, of course, tautological, for every purpura is hemorrhagic, we cannot admit that there is anything specific about epistaxis, for example.

As to erythema multiforme and erythema nodosum, most modern writers, such as Kaposi[35] and Osler,[36] consider them forms of a single disease, which they rightly prefer to call erythema exsudativum, and class as a mere eruptive variety of purpura rheumatica. Strangely enough, so high and recent an authority as Jarisch[37] drew a hard and fast line between the two erythemas, and regarded them as different diseases, calling attention to contrasts in their respective morphology, etiology, localization and clinical course. In the matter of morphology, Jarisch's standpoint seems somewhat narrowly dermatological, we have seen that the apportionment of cutaneous symptoms among the various species of intoxications is most misleading. As to etiological differences, he would seem to beg the question, since those he himself gives are of no great moment. Referring to clinical facts, many observers, myself included, have seen both erythemas combined with purpura and joint effusion in the same subject at one time; it requires only a moderate number of such cases to make the position of Jarisch quite untenable.

Many authors, like Litten,[1] have selected the old term morbus maculosus as a suitable designation for the entire group; this name has, in a high degree, the faults incident to nearly all symptomatic appellations, namely, ambiguity and inaccuracy. In view of the fact, that we regard rheumatism to-day as merely a convenient name for a mild type of sepsis of undetermined microbic origin, it seems to me that no better term than purpura rheumatica can be selected to cover the entire series of hemorrhagic diseases of similar origin, which, besides, in so many respects, give evidence of being only unusual forms of true rheumatic metastasis. The above aspect of the case is sustained by the prevailing opinion held at the Third International Dermatological Congress (1896), to wit, that purpura rheumatica and the two erythemas are mere forms of one disease. The matter cannot be considered absolutely settled until determined by bacteriological research; for the time being, however, as we have the consensus of the great majority, it is certainly justifiable to take the position I have indicated.

Summing up, then, we find that hemophilia, congenital or acquired, is a toxinemia with secondary auto-immunization to a quasi-normal function; that the scorbutic affections are chemical auto-intoxications, hemorrhagic only because the blood is especially involved; and that the purpura rheumatica group is only a manifestation of ordinary rheumatism or sepsis. After this exposition of their very diverse nature, it seems clear that the old class of the hemorrhagic diseases has become obsolete, should be relegated to the domain of historic medicine, and cease to appear in our monographs and text-books to further puzzle the student and physician.

I add a few lines concerning certain rare and obscure types. As to Henoch's[38] purpura, that clinician's original description makes it certain that we are dealing with a form of sepsis. It has since that time been observed in adults as well as children, and Osler[36] does not hesitate to make it variation of our last group, with visceral manifestations. As to Weil's disease, acute infectious icterus, I mention it here chiefly on account of the recent suggestion of Leiblinger[39] that it also might be of rheumatic origin, an interesting example of the present trend of thought on this subject. Winckel's disease, melena neonatorum, paroxysmal hemoglobinuria, and allied clinical pictures must be regarded not as distinct entities, but as symptom groups; like the other outwardly similar conditions, they have been placed among the hemorrhagic diseases; their proper position is under the various heads of sepsis, congenital syphilis, malaria, auto-intoxications, and so on, according to the individual case.

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MEDICAL PROGRESS.

SURGERY.

Operative Treatment of Chronic Bright's Disease.—This operation has won a great many admirers during the past two years in spite of the general belief, at first, that it could not possibly give more than temporary relief to this much dreaded disease. R. GUITERAS (N. Y. Med. Jour., Nov. 7 and 14, 1903) has collected 120 cases which have been operated upon for this condition. Some interesting points in regard to the rationale of the operation are discussed. Investigations upon dogs seem to prove that the anastomoses between the kidney vessels and the parietal ones is not so great as has been supposed by some. The anastomoses which do occur are found principally between the kidney and the wall of the abdomen upon which it rests. The fatty capsule seldom contains any blood vessels of any importance. It is, therefore, doubtful whether it is advisable to completely decapsulate the kidney. Furthermore it is found that after a few months another capsule is found just as strong and resistent as the first, and it is suggested now by many that the good results which are obtained by this operation may be referred more to the diminution of renal tension than to the increased blood supply to the kidney. If this is true, it would support the belief held by so many that the results are more or less temporary even at the best. From these reports which were received he concludes that chronic nephritis should not be operated upon till medical treatment has proven of no avail. The time for operation is when it is noticed that the process is advancing rapidly and we fear that the heart will soon be overtaxed. The best results have been obtained by operation upon a single movable kidney, the seat of chronic Bright's disease. The most unfavorable cases for operation are those of diffuse nephritis and when there is general anasarca with bad heart the operation should not be done. Where there is marked destruction of the kidney substance the patients may be relieved for a few weeks, but they generally fail again and die when the capsule begins to contract.

A Case of Spastic Ileus.—It was considered doubtful if intestinal obstruction could be caused merely by a tonic contraction of the intestines, but the case of D. PANKOW (Münch. med. Woch., Nov. 10, 1903) certainly admits of no other explanation. After a combined hysterectomy and nephrectomy, extreme meteorism and feculent vomiting appeared, and the patient seemed lost until an artificial anus brought unexpected relief. At the operation the descending colon was found contracted to the size of a lead pencil, the remaining intestines were enormously distended. The anus could not be closed before eight weeks, since all previous attempts caused a repetition of the symptom. The cause was probably the same as in pylorospasm secondary to peptic ulcer; local losses of substance caused by circulatory disturbances in shelling out the uterus.

Present Status of Subarachnoid Cocainization.—The enthusiasm with which the use of cocaine by lumbar puncture was greeted a few years ago was, for a time, most pronounced, but its employment now seems to be advised only by a few surgeons, and only for special reasons then. In spite of the reaction which seems to have set in against this method of anesthesia E. G. MARK (New York Med. Jour., Oct. 31, 1903) has investigated the results which have been obtained by himself and many other able surgeons in this country and abroad, and finds that the reasons for its disuse are by no means so important as is generally believed. In regard to mortality only one case has been reported that could legitimately be placed to the credit of cocaine. Several others have been reported, but in each case no connection could be traced between the cocaine and the mode of death. The disagreeable symptoms which sometimes follow its use are probably not due so much to toxic effects as to shock, and may follow the injection of an equal amount of salt solution. These symptoms are seldom more than transitory. No case of infection has been reported and hence this danger must be very slight. There is, however, one valid objection, and that lies in the fact that in some cases the analgesia is of too short duration for prolonged operative procedures, sometimes lasting less than thirty minutes. He has addressed letters to a large number of the most able surgeons in the country, and believes from the answers he has received and from his own experience the following conclusions are justifiable: (1) That the method is as safe as, if not safer, than general anesthesia; (2) that we may safely employ up to $^{48}/_{100}$ of a grain of cocaine without fear of toxic results; (3) that shock is decidedly less than that of general anesthesia; (4) that on account of the variability in the length of its analgesic action it is contraindicated in prolonged operations.

Surgical Interference in Hanot's Disease.—The type of cirrhosis of the liver, which has been successfully subjected to operation is the atrophic form in which ascites is a prominent symptom on account of the obstruction to the portal circulation. J. ROSENSTIRN (Med. Rec., Nov. 7, 1903) has operated upon two cases of hypertrophic cirrhosis, the first one as a result of a mistake in diagnosis and the second one intentionally. In both the omentum, gall-bladder and superior surface of the liver were sutured to the anterior abdominal wall, after scarification was done, and anastomotic channels thus formed between the parietal and portal circulations. Marked improvement occurred in both cases and, in fact, the symptoms have practically disappeared. The reason for this improvement is unknown, but a fanciful theory advanced by the author is that in this disease there is primarily a hypertoxicity of the intestinal blood, which in passing through the liver causes the new tissue growth around the biliary canaliculi. The liver is thus made more unable to cope with this toxicity of the blood brought to it, and the system is poisoned by a direct flow of a large quantity of this blood loaded with impurities passing unchanged into the general circulation. By compelling a part of it to follow this circuitous route it is believed that a part of the purification may be effected in this way, and less work be demanded of the liver cells themselves.

Colloidal Silver in Erysipelas.—Numerous favorable reports have appeared from France and Germany in regard to the use of colloidal silver by intravenous injection in various infective diseases. W. COLEMAN (Med. Rec., Nov. 21, 1903) has been using this remedy in several cases of erysipelas, and thus far has been surprised at the prompt and decided benefit which has resulted. Within a few hours there is usually a marked diminution of the symptoms with reduction of temperature, and in twenty-four hours the evidences of inflammation are frequently almost absent. He recommends

the use of from 5 to 10 c.cm. of colloidal silver being injected slowly and directly into any large vein, preferably the large ones at the bend of the elbow. No disturbing symptoms have resulted, except perhaps a slight temporary rise of temperature. The frequent use of this drug in various conditions has seemed to prove the harmlessness of it, and although too few cases of erysipelas have yet been treated to warrant any valuable conclusions, yet it promises to be, at least, an important adjunct to other methods.

Surgical Treatment of Gastroptosis.—The various measures recommended for gastroptosis are numerous, yet many cases are benefited but slightly after years of treatment. It is for this reason that D. HAMMER (Münch. med. Woch., Dec. 1, 1903) warmly advises gastro-enterostomy. Frequently the diagnosis is not absolutely certain; the symptoms may be so severe and the dilatation of the stomach so excessive that a pyloric stenosis suggests itself, but if the patient consents to operation, a clear idea of the pathological condition can be obtained. Medical treatment is troublesome and only possible with patients in good circumstances, the improvement lasts only while lavage, careful diet are continued, but with operation the cure is permanent and little risk is incurred.

Functional Renal Diagnosis without Ureteral Catheterization.—Renal diagnosis by means of ureteral catheterization and cryoscopy are considered too complicated and unreliable by F. VOELCKER and E. JOSEPH (Münch. med. Woch., Dec. 1, 1903) to admit of general use. The use of methylene blue would be ideal were it not for the fact that this dye is not evenly excreted since changed in part into a colorless oxidation product. In a series of experiments, iodide of potash was given and the bladder filled with a solution of peroxide of hydrogen containing starch. After introducing the cystoscope the discharge of urine, which became converted into a blue cloud, could be easily observed. Since the fluid became too dark for further observation in a short time, the authors continued their experiments and finally discovered an ideal dye in indigo-carmine to replace methylene blue. Injected in doses of 16 centigrams into the gluteal muscles, it is absolutely harmless and possesses the further advantage of being excreted solely by the kidneys. The excretion is absolutely uniform; it begins in 15 to 30 minutes, reaches its maximum after two hours, and then gradually disappears during the next ten hours. An accurate study of the action of both kidneys is possible even in cases where one cannot find the ureteral orifices and truly beautiful pictures are obtained with the cystoscope. The method fails only in cases of prolapsed uterus and vagina, since here the discharge of urine is into a cul-de-sac behind a prominent bar of tissue and hence invisible to the eye. In prostatic hypertrophy and uterine tumors much better results are obtained than with urinary segregators. One great value of the method lies in the fact that the actual amount of functionating tissue in each kidney can be estimated by observing the frequency of contraction and the size and color of the blue cloud, which rises in the colorless fluid. It is also possible to determine approximately the specific gravity of each urine by introducing solutions of known density into the bladder and then observing if the cloud rises or falls.

THERAPEUTICS.

Antistreptococcus Serum in Phthisis.—Tuberculosis as such gives a fair prognosis and most uncomplicated cases can be cured with proper climate and care. With the appearance of secondary infections the outlook becomes much more grave and an extended trial of the new antistreptococcic serum seemed in place, especially since streptococci are found in most cases. D. MENZER (Münch. med. Woch., Oct. 27, 1903) believes that all cases where heart and digestive tract are still in good condition are suitable. He begins with half a cubic centimeter of the normal serum and repeats this dose in four to eight days, according to the reaction. Gradually the amount is increased up to 2 to 3 c.cm. The best site of injection is the thigh or arm. In from four to six hours reaction sets in manifesting itself in headache and increased cough, and expectoration with abundant leucocytes and degenerated cocci and tubercle bacilli. Occasionally the latter are demonstrated for the first time during this period. The temperature rises up to 37.6° to 39° C., abundant râles are heard over the lungs and a slight increase of leucocytes can be detected in the blood. A marked improvement in the general condition of the patients followed in almost all cases.

Properties of Radium.—An interesting résumé of the properties of radium is found in the article by S. G. TRACY (Jour. of Adv. Therap., Dec., 1903). It appears that this wonderful substance is capable of emitting three kinds of rays: Cathode and Roentgen rays, and rays due to positively electrified true atoms. Their combined effect resembles the X-rays closely, but it takes a much longer time to take a photograph similar to a radiograph. It has been proved to the satisfaction of medical men that radium salts have a positive effect upon diseased tissue and even at this early stage it looks as if their use were indicated in lupus and other forms of tuberculosis, rodent ulcer and some cases of deep cancer in chronic skin disease, atrophy of the optic nerve and blindness from other causes. The radium rays give more promising results in these conditions than other rays.

Effects of Roentgen Rays on Animals.—If a small amount of radium bromide is allowed to act upon small mammals at a distance of 12 to 15 centimeters, marked emaciation, dermatitis and death will follow in about three weeks. The Roentgen rays are more active and kill white mice after an exposure of 5 to 19 hours, even before a dermatitis has set in. The autopsy on such animals is somewhat disappointing, according to H. HEINECKE (Münch. med. Woch., Dec. 1, 1903), since the spleen alone shows lesions. As these lesions point toward a destruction of red cells, the writer believes that the rays kill by their deleterious action upon the blood. Though death was equally rapid where the head was protected by lead foil, it is still possible that the central nervous system is also implicated, since the ganglionic cells were also found abnormal when stained according to Nissl.

Some Morphine Derivatives.—The effects of morphine, codeine (methyl-morphine), and dionine (ethyl-morphine) are of the same general nature, differing only in the degree of their manifestation. For example, following a lethal dose of morphine the sleep is profound and convulsive manifestations are late and of little importance, while after codeine sleep is light, and there are attacks of epileptiform convulsions during one of which death takes place. Both drugs cause slowing of respiration and heart and lower blood-pressure, but morphine much more than codeine. Dionine, the higher homologue, acts like an intensified codeine, producing more fleeting sleep, more intense convulsions, and more marked depression of respiration, pulse, and blood-pressure. The question then arises, Do the "apo" derivatives of these bodies form a similar pharmacological series? To determine this A. MAYOR and E. FONTANA (Rev. Med. de la Suisse Romande, Oct. 20, 1903) have made a comparative study of the hydro-

chlorates of apomorphine, apocodeine and apodionine. Apomorphine produces vomiting in man and certain of the lower animals. In the dog, in addition, it induces a dreamy condition followed by a restless delirium. Sometimes, especially in mental conditions, it induces somnolence in man. Apocodeine produces neither vomiting nor delirium, but on the contrary, causes purging, muscular weakness, and sleep like that from codeine. It was hoped that apodionine would show the effects of apocodeine in increased degree, and would prove a valuable purgative for hypodermic use, especially as dionine itself is not infrequently laxative. However, apodionine has been found to be less potent than apocodeine, and to have an action between that of apocodeine and apomorphine. Sometimes it purges, sometimes it induces vomiting, but it is too inconstant for employment either as purge or emetic. To the heart all three substances are depressing, and a number of cases of collapse from apomorphine have been reported. Death from toxic doses of the morphine derivatives is due to paralysis of respiration, but if artificial respiration be maintained the heart will continue to beat. If then the administration of the drug is continued, the heart finally succumbs from direct action on its muscle or contained ganglia. The quantity of morphine and its ethers necessary to thus overcome the heart is four or five times as much as will stop respiration, except for peronin (benzyl-morphine), which is so depressing to the heart that paralysis takes place with very slight dosage after paralysis of respiration. Of the *apo* derivatives under consideration the dose per kilo to stop respiration in the rabbit is for apomorphine 0.099 gm., and to stop the heart 0.115 gm.; for apodionine, 0.81 gm. for respiration and 0.130 gm. for the heart; and for apocodeine 0.054 for respiration, and 0.152 for the heart. Apocodeine is, therefore, least depressing to the heart and most depressing to respiration. This latter effect is less than that of morphine and greater than that of codeine. Apodionine, then, will probably be of little use in therapeutics, apomorphine will continue to be used as an emetic, and apocodeine will be employed as a sedative.

Treatment of Surgical Shock With Adrenalin.—Laboratory experiments apparently show that adrenalin by intravenous injection is a very powerful cardiac and vasomotor stimulant. Its clinical value in the human subject is, however, somewhat uncertain. The toxic dose for man is not as yet known, but it is probably several hundred times greater than that in which the drug is ordinarily given. EDWARD MARTIN and M. E. PENNINGTON (Am. Med., Nov. 21, 1903) have recently employed it in six cases of shock, all of which exhibited symptoms of impending death. They did not feel that the present knowledge of its powers or toxicity was such as to justify its employment in cases where there was any hope of recovery by other methods. In two of these cases the effect of the intravenous injections of adrenalin was immediate and unmistakable, the recovery from the operative shock being well marked, although both patients died from sepsis a week later. Because of the tendency to abscess formation at the seat of injection incident to the ischemia caused by strong solution, the dilution should be at least 1-10,000, when the drug is given hypodermatically. It is not probable that any effect can be expected from less than 2 c.c. of the 1-1,000 solution. It is also apparently safe to give an initial dose of the strong solution in 90 c.c. of normal salt solution. In cases of urgency adrenalin chloride should be given intravenously in a dilution of 1-10,000, quite slowly, so as to prolong the effect of the drug, and should be pushed up to 100 c.c. of the strong solution or until the heart responds clearly to its influence. The authors conclude that there is as yet no convincing clinical proof to the effect that the drug is as efficacious when used in man as laboratory experiments would lead us to suppose. The clinical evidence also suggests that it lessens the bacteriolytic power of the blood of man in a manner similar to that known to take place in animals, and its use in cases of infections should, therefore, be prastised with caution.

PHYSIOLOGY.

The Influence of Electrolytes on the Action of Amylolytic Ferments.—Inasmuch as the results obtained by many investigators with respect to the action of acids on salivary digestion, do not agree, S. W. COLE (Jour. of Physiol., Nov. 2, 1903) undertook an investigation into the question with the object of finding, if possible, an explanation of the discrepancies. He found that it is necessary to distinguish carefully between the action of saliva and that of ptyalin. In studying the action of saliva, one is actually studying the action of ptyalin as modified by the influence of the other varying constituents of saliva, such as sodium carbonate salts, mucin and other proteids. It might reasonably be expected that the influence of various conditions on the rate of action of the purified ferment does not correspond with their effect on normal or even diluted saliva. The author found that the action of dialyzed ptyalin on dialyzed starch is increased by the addition of very small amounts of acids and of the neutral salts of strong monobasic acids. The sulphates accelerate the action considerably, but not nearly so markedly as chlorides and bromides. In the case of the chlorides the acceleration seems to be due to the influence of the chlorine ion, all chlorides having about the same effect. The action, however, is decreased by the addition of larger amounts of acid (0.0007 to 0.0012 per cent. of hydrochloric), and by the neutral salts of weak monobasic, dibasic and tribasic acids. The following hypothesis is brought forward to relate these facts: The hydrolysis of starch by ptyalin is accelerated by the presence in the solution of electronegative ions (anions), other than hydroxyl ions, and depressed by the presence of electro-positive ions (kations), and by hydroxyl ions. The acceleration due to a negative ion varies with the nature of the ion, being greatest for the anions of strong acids, and least for the anions of weak acids. An optimal concentration of these anions can be reached, the further addition being without effect. The ferment is destroyed by a certain concentration of hydrogen ions. The effect of any electrolyte upon the rate of action is compounded of two factors: The acceleration due to the anion and the depression due to the kation.

Temperature Variation in Nocturnal Animals.—Having established the fact that the temperature curve in monkeys is dependent on the alternation of cycles of activity and rest, J. J. GALBRAITH and S. SIMPSON (Jour. of Physiol., Nov. 2, 1903) found it of interest to investigate the conditions which obtain in nocturnal forms. They discovered that the owl exhibits a temperature-wave the inverse of that in other birds. It was also noted that in comparing various birds the smaller the bird the greater is the diurnal variation and that the mean temperature of the female is, as a rule, higher than that of the male.

Protoplasmic Activity of the Renal Epithelium.—By injection of various pigments into the circulation, W. S. CARTERS (Jour. Amer. Med. Ass'n, Nov. 21, 1903) sought to determine the method of their elimination by the kidneys. His results indicate that pigments are excreted by a protoplasmic activity of the renal epithelium. They do not exclude the possibility of fil-

tration of some of the pigment through the glomeruli. On the other hand, when ammonium carminate is used the sections indicate that this is the case. It should be borne in mind that both processes may operate at the same time.

Influence of the Nerves Upon the Artificially Revived Heart.—To what extent the nervous mechanism regulating the heart-beat is capable of surviving somatic death, was the subject of an investigation by H. E. Hering (Pflüger's Archiv, Oct. 6, 1903). The latter had already demonstrated that if in a mammal after death the heart be perfused with defibrinated blood, it is possible for a long time to get positive results by stimulating the vagus and the accelerans. In the present series of experiments the author used hearts which had been resuscitated by means of an artificial circulation of Ringer's solution. He found that under this condition he could elicit all the various manifestations of the effects of the cardiac centrifugal nerves, namely, the slowing, pause and weakening associated with vagus stimulation, and the acceleration and strengthening accompanying stimulation of the accelerans. The longest period of completed vagus inhibition was observed in a dog's heart and amounted to seventy-five seconds. The author was able to corroborate the interesting results obtained by Kuliabko with hearts resuscitated a long time after death. Exceptional opportunities were afforded him to carry out his researches on the hearts of anthropoid apes. His results with hearts resuscitated a long time after death show that even then the centrifugal cardiac nerves may be aroused into activity and that the vitality of the accelerans lasts longer than that of the vagus. These results are of exceptional significance inasmuch as in the long interval following death there was no circulation of blood or of other fluid in the nerve-fibers, and inasmuch as one would expect that the labile molecules of the nerves would succumb long before the dissolution of the cardiac muscle. Of interest from other points of view are the results of two experiments which were negative. In the one there is seen the possibility of reviving the heart, although not the cardiac nerves, one and a half hours after death caused by strychnine poisoning following a long period of chloroform narcosis. In the other, also on an ape, the animal after having been inoculated with tetanus, was killed by bleeding and the heart removed and placed on ice. Fifteen hours later the heart was revived, but no effects could be obtained on stimulation of the centrifugal nerves. In one successful case, three hours after the death of an animal that had been inoculated with tetanus, distinct results were obtained by stimulating the vagus and the accelerans. In a more remarkable case, the heart of an ape was resuscitated after three successive intervals, namely, 4½, 28½ and 53 hours following death. In the course of the last interval the heart was twice frozen as hard as a rock. The vagus effect was obtained six hours after death, and the accelerans effect as late as fifty-three hours after death. This result would seem to cast some doubt upon the generally accepted doctrine that in the process of death the central and peripheral nervous systems are the first to succumb. The author taking into consideration the influence of the accelerans, which, as the above experiments show, survive that of the vagus, is able to submit the two following alternative hypotheses, namely, it is possible to rehabilitate the function of the cardiac ganglia fifty-four hours post mortem, in the course of which time the heart has been completely frozen; or at the end of this long interval the cardiac ganglia have long lost their capacity to function, the accelerantes acting upon the heart without the mediation of ganglion cells, and in this event, the cardiac ganglia could not be considered the source of automatic stimuli to the heart-muscle.

New Studies in the Suprarenal Glands.—In the course of investigations on the comparative anatomy of the suprarenal bodies, S. Vincent (Jour. of Anat. and Physiol., Oct., 1903) finds that the suprarenal capsule of mammals consists of two separate and distinct glandular organs, which are anatomically conjoined, but developmentally and physiologically quite unrelated. The cortical portion, representing one of the organs, is of glandular form and structure, but nothing is known of its function, and its development is the subject of some discussion. The other organ, namely, the medulla of the mammalian suprarenal, is part of the system of "chromaffin cells," which are found also in various places in relation to the sympathetic nervous system. Imperfect is the knowledge of the physiological significance of these masses of chromaffin cells, whether in the suprarenal medulla or wherever else they may be found. The consensus of opinion, however, among most recent workers is that they are developed from the nerve cells of the embryonic sympathetic ganglia (or from the original neural epithelium), and that they are, when fully developed, highly specialized secreting cells which manufacture and pass into the blood-stream a very powerful substance, whose function is to maintain the tone of muscular and other tissues throughout the body.

Experiments with Rennet and Anti-Rennene.—A series of investigations were prosecuted by J. McFarland (Jour. Amer. Med. Ass'n., Nov. 21, 1903), which confirm Morgenroth's discovery that the repeated subcutaneous injection of rennet into an animal is followed by the formation of an antibody inhibiting the action of the rennet. They show that properly prepared mixtures of rennet and anti-rennene give a specific precipitate, and show for the first time that the action of the anti-rennene is infinitely more powerful when the two are united and allowed to stand for some time, before being added to the milk, than when immediately added to the latter. This phenomenon is analogous to the interaction of venom and anti-venene.

A Chemical Study of Hibernation.—In pursuing a chemical investigation of the hibernating gland of the hedgehog, E. W. Carlier and C. A. Lovatt Evans (Jour. of Anat. and Physiol., Oct., 1903) confirm the remarkable fact that life during hibernation is maintained practically upon fat alone, a condition made necessary by the well-known inability of the animal body to store up a supply of nitrogen. If the hibernating animals had not acquired this power of living without a constant supply of nitrogenous food, hibernation would have been an impossibility.

Conditions Influencing the Diurnal Wave in the Temperature of the Monkey.—The proximity of relationship between the monkey and man, renders physiological observations on the former of peculiar interest. J. J. Galbraith and S. Simpson (Proc. Physiol. Soc., Jour. of Physiol., Nov. 2, 1903) find that the diurnal temperature variation in the monkey is considerable. The rise always occurs during the period of activity, the fall during the period of rest. The wave is independent of the room temperature. In one series of experiments the monkeys were kept in darkness during the day and in artificial (electric) light during the night, and they were now fed at 6 A.M. and 9 P.M.; their periods of activity and rest were thus reversed. This was done with the view of ascertaining how far the curve is influenced by the so-called "hereditary disposition." The result was a complete reversal of the wave within twenty-four hours of the change

in the periods. In order to investigate the relation of light to the occurrence of the diurnal wave, the monkeys were kept in total darkness for a week. The wave, greatly modified, persists for some days and then totally disappears. These experiments show that the temperature control in monkeys is less perfect than in man.

The Question Concerning the Existence of Cardiac Ganglia.—It had been discovered by H. E. HERING (Pflüger's Archiv, Oct. 6, 1903) that in a heart resuscitated by means of an artificial circulation of Ringer's solution the accelerans fibers retain their irritability a much longer time than those of the vagus. This suggested the alternative hypotheses, namely: Ringer's solution is capable of preserving or arousing the vitality of the intracardial ganglia for many hours after the death of an animal, or it is not capable of doing this. In the latter case the intracardial ganglia are not the source of automatic impulses to the heart-muscle, nor are they part of the circuit carrying impulses to the heart along the centrifugal cardiac nerve. In discussing the theoretical and experimental aspects of this problem, the author finds that the experiences of Langendorff, Langley and himself teach that preganglionic stimulation of the sympathetic nerve after the death of an animal has no effect at a much earlier period following death than postganglionic stimulation. The last has also found that the vitality of the vagus and accelerans outlasts that of the preganglionic sympathetic. Moreover, Ringer's solution is not capable of preserving or arousing the activity of the sympathetic ganglia. Besides, the intracardial apparatus can bear the condition of anemia much better than the extracardial sympathetic ganglia. These results lead the author to conclude that the intermediate nervous mechanism in the heart is not the same as that contained in the sympathetic ganglia outside the heart, and that in all probability, at least as far as the accelerans is concerned, the intracardial nervous apparatus does not consist of ganglionic cells, and that the latter are not the source of automatic impulses to the cardiac muscle in the adult mammal any more than in the mammalian embryo. The author had shown that the vitality of the accelerans outlasts that of the vagus. Among the many known poisons there is none which exclusively abolishes the accelerans effect, while there are many that abolish the vagus effect, leaving the accelerans unimpaired. This observation lends support to the view that the impulse of the accelerans reaches the heart muscle in a manner different from that in which the impulse travels from the preganglionic to the postganglionic sympathetic. Anatomy and physiology agree on this point: the accelerans is not connected with intracardial ganglia; but the vagus is thus connected, yet the impulse reaches the heart from the extracardial vagus in a manner different from that in which it passes from pre- to post-ganglionic sympathetic; or, on the other hand, the vagus is not connected with intracardial ganglia, the latter having, as His, Jr., has pointed out, a sensory or vasomotor function.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Blood Examination in Scarlet Fever.—In about 15.5 per cent. of scarlet fever cases, G. JOCHMANN (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 3 and 4) could detect the streptococcus in the blood during life. The germs were identical in every way with the *Streptococcus pyogenes erysipelatos*. Examinations during the height of the eruption, on the first or second day, were always negative. Clinically the cases did not differ from other severe scarlatinas without bacteriuria. Another proof that the germs have nothing to do with the severity of the disease is offered by the fact that they were never found in the hyperacute cases. A positive blood culture renders the prognosis very grave; in general it may be said that death will set in one or two days after the invasion. Where the immediate cause of death was nephritis, cocci were encountered in as high as 50 per cent. At best the number of germs found is small as compared with the large number often present post mortem; yet there are many reasons to believe that an actual multiplication occurs during life. In some cases a blood-examination half an hour before death was negative and twenty-four hours after death strongly positive, which made it seem as if a migration occurred even after the circulation has stopped, but animal experiments showed that the abundance must be attributed solely to multiplication on an especially suitable medium. There is no question that septicemia plays an important part in scarlet fever, so important that occasionally the primary disease is entirely overshadowed. It would be a mistake, however, to bring streptococci into etiological relation with scarlet fever, since their usual site, the tonsil, occasionally does not harbor them, and in very many cases they are found here in abundance in health. The morbid processes of scarlet fever merely break down the natural barriers and permit of an invasion of the blood and the internal organs.

Glycogen in Fever.—The experiments of D. ROLLY (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 3 and 4) prove that glycogen disappears from the body in toxic fever, hunger, muscular exertion and artificial fever caused by cerebral injury. The liver is the first organ to lose its glycogen and since the temperature is highest here, it is probably due in great part to the destruction of this carbohydrate. If animals are rendered entirely free from glycogen, injury to the striate body will no longer be followed by fever; if, however, the animals are now fed with sugar, rise of temperature will again appear. Pathogenic microbes and their toxins cause fever, no matter whether glycogen is present or not. The increased excretion of nitrogenous bodies after injury to the heat center is not a direct result of this, but is caused by the increased combustion of animal tissue incident to the high temperature. With toxic agents the amount of nitrogenous excreta is much higher, since they themselves cause proteid dissolution as well as glycogen combustion. Fever in general, is thus accompanied by two parallel processes: a specific destruction of the proteid affected by the toxin and a central irritation acting upon the glycogen.

Blood in Malignant Disease.—Careful examinations of the blood so frequently clear up the diagnoses of cases which are otherwise obscure that it has been greatly regretted that more information could not be obtained from the blood of malignant diseases. E. N. CUNLIFFE (Med. Chron., Sept., 1903) has examined the blood of 90 cases of malignant tumors and finds that his results correspond in a general way very closely with former investigators. The most constant and characteristic feature is the decrease which takes place in the amount of hemoglobin and in the hemoglobin index. Decrease in the number of red cells is usually met with in advanced cases or in those complicated by hemorrhage, but many early cases show no diminution. Leucocytosis is the rule in malignant disease but may be absent in early cases and sometimes in advanced ones. The main factors causing leucocytosis are the occurrence of metastases, hemorrhage, cachexia, ulceration, and septic infection. Pyrexia has no apparent in-

fluence. Polymorphonuclear neutrophiles are usually increased in number and this may be so even in the absence of leucocytosis. Abnormal cells as normoblasts and myelocytes may be present in advanced cases.

Nature of Fatty Degeneration.—The following experiments of F. Fischler (Virchow's Archiv, Vol. 174, No. 2) prove that fatty degeneration is not caused by an actual conversion of cellular protoplasm into a fat but by deposit of fat from the circulation. A chemically pure soap was allowed to circulate through the kidney of a rabbit with glycerin, the animal then killed and serial sections made of the hardened organ. The endothelial cells presented a finely granular appearance, while the tubular epithelium was in a condition of acute degeneration. With sudan all the granules were stained intensely, the fatty deposit being most marked in the convoluted tubules of first and second order, less so in the cells of Henle's loop. The tissues in the neighborhood of vessels were most affected, especially where an artery and vein were present close together. The experiments are an evidence of active chemical changes in the cells as the soap was first split up and the fatty acids then combined with the glycerin to form fat, which took the place of the altered cellular protoplasm.

Pathogenesis of Blood Diseases.—It is still an open question whether connective tissue hypertrophy is a primary or secondary process in interstitial inflammation. An ingenious theory is advanced by S. M. Zypkin (Virchow's Archiv, Vol. 174, suppl.), which, when applied to blood diseases, greatly elucidates this obscure chapter of pathology. It has been observed repeatedly that low organisms respond to all kinds of irritation by proliferating; as best example, a certain infusorium may be mentioned, which, when infected with parasites, begins to divide until each descendant is almost free from germs. This same phenomenon may be observed more frequently in the vegetable kingdom; in fact, almost the entire plant pathology has to deal with hyperplastic processes. The higher a cell is organized, the less marked will this phenomenon be, and in the highly differentiated cells of the human organs, degeneration takes its place. The connective tissue, however, being low in the scale, even in mammals, will proliferate. Hyperplasia and degeneration must thus be looked upon as two processes which may be induced by the same toxin circulating in the blood, and which go on simultaneously. The blood-forming organs (spleen, lymph-nodes and bone-marrow) are built upon the same type, their cells occupy an intermediary position in that they are capable of both degeneration and hyperplasia. Thus, in recurrent fever, the former is the rule, in most other infectious diseases, the latter. The order of pathological events with any intoxication would thus be as follows: Degeneration of the specific parenchymatous cells (degeneration of liver and kidneys in scarlet fever); degeneration and hyperplasia of the lymphoid organs (swelling of the spleen in typhoid); finally hyperplasia of connective tissue (chronic nephritis after diphtheria, scarlet fever, etc.). Infection such as influenza, measles and smallpox, which rarely cause swelling of the spleen, are not often followed by chronic inflammation, since the third stage can hardly be expected where the second does not set in. Cirrhosis of the liver need not be accompanied by a splenic tumor, since the action of alcohol may be purely local upon the liver; if, however, very large quantities are ingested it also exercises a destructive action upon other organs and then the spleen will swell. What has been said of the spleen also applies to the lymph-nodes and bone-marrow, for in almost all cases with splenic tumors the marrow will be found hyperplastic and lymphoid marrow will take the place of the normal fat marrow in the long bones. In applying the above principles to the blood, we must look upon this fluid as an organ with the red cells as highly differentiated, parenchymatous cells, only capable of degeneration, as manifested by anemia, poikilocytosis, micro- and megalocytosis, stippling, etc.; and the leucocytes as lowly differentiated, interstitial elements, possessing the power to proliferate. The first effect of an irritant upon the blood would then manifest itself as chlorosis, simple anemia or pernicious anemia, where there is only a degeneration of the specific elements, though the last-mentioned disease may already belong to the second stage when the spleen and lymph-nodes are found swollen. Better evidences of the second stage are found in pseudoleucemia, where the erythrocytes show degeneration and the cells of lymph-nodes and spleen hyperplasia. Most cases of splenic anemia, including the first stage of Banti's disease, occupy an intermediary stage between pernicious anemia and pseudoleucemia, in that the proliferative changes involve the spleen alone and there is really no good reason to look upon Banti's disease as a separate affection, since there are also cases where splenic anemia is combined with myocarditis or interstitial nephritis, instead of cirrhosis. The third stage is represented by the various forms of leucemia; the increase of white cells here corresponds in every way to the hypertrophy of connective tissue in other organs. That all blood diseases are manifestations of the same pathological process in varying intensity is well demonstrated by the fact that they often pass over into each other and that transitional stages which were formerly classified with difficulty are common. The different varieties of leucocytes generally react differently toward stimuli; since the lymphocytes are more highly organized than the other leucocytes, it is easy to understand why acute leucemia is generally lymphocytic and why the lymphocytes increase first in every leucemia.

Ultramicroscopic Examination of Fluids.—The new microscope, which enables the detection of ultramicroscopical particles by lateral focal illumination has been put to the practical test in medicine for the first time by E. Raehlmann (Münch. med. Woch., Dec. 1, 1903), with most astonishing results. Solutions of various dyes were found to contain myriads of small particles, shining in their own color, in suspension. In mixed colors, the particles of all the ingredients could be identified, but occasionally new combinations were formed. A great future is promised for this discovery in the detection of contamination. Most histologists believe that animal tissues stain readily because they become impregnated with the dye, but it now seems more probable that the fine particles simply coat the delicate structures. Certain non-colored organic substances were then examined and it was found that albumin solution, though filtered three times, also contains the albumin in finest suspension. A new method of quantitatively estimating the amount of albumin suggests itself. In a one-per-cent. solution it is impossible to obtain details, since the particles lie too closely crowded; in a dilution of 1 in 100,000 they become distinct and are still visible when the amount of albumin is only two parts in ten million. Their size varies and the smallest are just visible as fine points. They are all engaged in active motion, which becomes less, the higher the dilution. In solutions of dextrin, gum arabic, glucose and lactose, particles of similar appearance are found. With glycogen they possess a characteristic grayish-white color, and a peculiar motion, which probably points to a special form of solution; as soon as a small amount of diastase is added they alter their characters immediately and appear like those of dextrin.

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INSANITARY NUISANCES AND LEGAL PROCEDURE.

THERE is no doubt that great improvements will be effected in sanitary conditions in the near future by the feeling that those who neglect proper sanitary precautions are liable, criminally and civilly, for their negligence.

This principle will affect many people and many more actions than are usually considered to come under the head of those bound to maintain sanitary conditions. There are two things, for instance, that at the present time are attracting considerable attention and that undoubtedly are provided for by a definite statute of the penal code of New York State. These two are the failure of street railway and elevated railroad companies to furnish proper heating for their cars, especially during the rush hours when there is so much of additional drain upon their supply of electrical energy, and when sufficient power is not at hand to heat, as well as move cars. The other is the necessity for railroad companies to provide some other means for the disposal of the sewage inevitably connected with transportation facilities, than the crude barbaric method which now prevails, and which consists only of scattering excreta to the four winds of heaven, hopeful perhaps that somehow nature will care for it.

Section 385 of the penal code of New York State reads in part as follows: "A public nuisance is a crime against the order and economy of the State, and consists in unlawfully doing an act or omitting to perform a duty, which act or omission: (1) annoys, injures or endangers the comfort, repose, health or safety of any considerable number of persons."

According to this statute persons so doing are guilty of a misdemeanor and are liable to fine or imprisonment, or to both.

There seems no reason to doubt that this section will be construed by the courts in such a way as to cause railroads that permit the abuse of deliberately transporting passengers in cold cars, because of the company's failure to have on hand a sufficient supply of electrical energy for heating purposes, even at times of heavy business, to be adjudged guilty of a misdemeanor and liable, criminally and civilly, for their actions in the matter. That an action in damages would lie in such cases in favor of persons who either caught cold or whose health had been seriously disturbed by riding in such cold cars, there also seems no reason to doubt. It is a new application of legal principles to make the companies responsible in such cases. But then the whole question of the origin of disease not as an inscrutable dispensation of Providence, but as a result of the neglect of proper sanitary precautions, has come to be acknowledged only in recent years, and the rational method of establishing legal precedents is by suits for damages.

Every physician knows that many of the colds, and probably even such infectious diseases as pneumonia and bronchitis, are acquired as the result of exposure to cold under the unfavorable conditions of overcrowding that obtain in our street cars and public conveyances generally during the rush hours. Certain parts of the evils associated with the peculiar shape of New York and the necessities of transportation the companies cannot correct, but at least the proper heating of cars must be maintained.

The same section of the penal code would seem to cover very effectually the nuisance with regard to the scattering of excrementitious material along the roadbeds of our railroads which has recently been so deservedly called to public attention in the columns of a medical contemporary. There is no doubt in any physician's mind of the danger of this practice. Excrementitious material that is allowed to dry, to be then blown about by the wind may easily be carried into streams that sup-

ply drinking water, or even into houses in smaller towns to be deposited on food materials. Here again it is only in recent years that the danger of this procedure has been recognized, and there is little doubt that much typhoid has been in this manner distributed. The present crude system, however, of disposal of this material can readily be improved upon if the railroad companies really care to bring about an amelioration of existing conditions, and there is a crying need for reform. Like every other improvement, however, that affects public comfort but does not appeal to the financial department of a railroad, and neither adds to its earning power nor subtracts from its receipts, this change in present methods has not and will not come to actual consummation unless the companies are forced to it.

In New York State at least we should be in a position to secure this improvement without delay. The deadly car stove went after proper legislation. We seem only to need the enforcement of already existing legislation in the present case to enable us to get rid of the dangers of open water-closets in passenger coaches.

There seems then to be a legal remedy at hand in most cases of nuisances involving health even remotely, and there is only need of a few precedents in legal decisions to secure rights that now are wofully abused. If some of the wealthier classes would, when their illnesses are the result of these violations of statute, take the matter in hand precious safeguards for the health of the community could be raised up. Much of true charity can be thus accomplished without the dangers of pauperization or the waste in official salaries that so often discourage charitable impulses.

THE BENDS AND THE "SANDHOGS."

There is a great class of underground workers who because of their toiling in the darkness, are generally known as "human moles"; a select division of this class, whose members grub the soil from the bottom of caissons are known among their fellow-workers as "sandhogs." Under certain conditions, only partially understood, they suffer from a disease, one symptom of which is familiarly and jocosely known among them as the "bends"; a less graphic synonym is "caisson disease." Languages indeed draw their very breath from the vernacular of the proletariat.

Since construction work began on the new Manhattan bridge, five men have been killed by caisson disease. In the past it has not signified much whether a dozen or more sandhogs were paralyzed or perished, it was the usual and expected thing for them to suffer periodically from the colicky pains they called the "bends." A few sandhogs more or less did not matter either to the public or to the contractors. Recently, however, a more important person has succumbed, viz., Dolan, a masonry inspector, and much public attention has, as a result, been called to bear on the subject. The Department of Bridges finds itself unable to employ inspectors who are willing to work three hours a day at $10 because of the high rate of mortality. The last victim, it is stated, was examined by a competent physician prior to his undertaking the inspectorship, and entered the caisson apparently in perfect physical health. He died shortly after coming to the surface.

It is unnecessary to dwell at any length upon the etiology of caisson disease. It is well known that in bridge building and similar subaqueous operations, the caissons devised by Triger are in almost universal use. Pol and Watelle, who wrote widely on the physiological effects of compression, as observed on themselves, state that pains in the ears, slowing of the respiration and pulse, an increase of urinary secretion are among the first evidences of the response of the individual to the pressure. Certain muscular movements of a finer kind are impossible. They found themselves unable to whistle or to whisper. On the release of the pressure they experienced a sensation of cold dyspnea; the pulse rate rising from 55 to 85. These authors state that there is no danger in entering the caisson nor in a reasonably long continuance of exposure to the increased pressure, decompression being the real danger. Unless this be effected very slowly, sharp muscular pains may subvene, hebetude, loss of sensation, coma, deafness, blindness or sudden death—any or all may follow. Further local symptoms: swelling of the joints and a violent pruritus, known in the sandhog vernacular as the "fleas," have been described by Francois.

In 1866 Triger addressed a report to the courts in which he maintained that it was relatively easy to prevent caisson disease. The means suggested by him consisted in the use of woolen garments and in the proper manipulation of the lift-lock. Triger asserted that if seven minutes were allowed for decompression, the accident would cease. Eads, while building the St. Louis bridge, where he employed a pressure of $4\ ^{15}/_{100}$ atmosphere, concluded that the rapidity of the compression and decompression is a less important factor

than the prolongation of the sojourn in the caisson.

The pathology of the condition has been ascribed by certain writers to minute hemorrhages in the cord and elsewhere. Others, including Pol, Watelle and Hoppe-Seyler have accredited the condition to an escape of the gases from the blood and their return to the free state under the influence of sudden decompression. This does not affect the three gases of the blood equally. The proportion of oxygen is very little increased as the pressure is raised, that of the carbon dioxide remains constant. Paul Bert found the chief increase to be nitrogen. It is probably the liberation of this gas which gives the long train of symptoms familiar to all. It is of great interest that the paralyses almost invariably begin in the legs. The lumbar enlargement of the cord is affected more profoundly than any other.

Cohen states that the intensity of the accidents accompanying decompression depend (1) on the length of the exposure to pressure, (2) on the element of individual resistance, (3) upon the degree of pressure attained, (4) upon the rapidity of decompression. Bert advised that this be effected at the rate of from eight to ten minutes for each atmosphere, but some authors double the period.

All authorities agree that the only method of treating cases of caisson disease is by an immediate reestablishment of the pressure followed by a very gradual return to the normal.

Dr. Walter Bensel, Assistant Sanitary Superintendent of New York, on being asked what action the Board of Health proposed taking toward limiting this menace to the health of the caisson workers, replied that before any more extensive caisson work was undertaken within the city confines, steps would be taken for their protection. The use of suitable locks, which up to the present time has not been insisted upon, will be made obligatory. The present methods of decompression in the case of the Manhattan Bridge are crude to an astonishing degree. At the expiration of the hour and a half shift, sandhogs and inspectors simply swarm up the stand-pipe overlapping each other on the ladder. Here they stand for from one to three minutes and pass from 45 pounds pressure to 15. There is no suitable decompression chamber; no warmth, no ventilation. Until now, any type of man applying for the work has been allowed to qualify as a "sandhog." In future it is probable that only men under thirty and, so far as possible, those of a temperate habit, will be permitted to enter these ranks. In general, the department will suggest as preventive safeguards against caisson disease, first, adequate decompression; second, suitable ventilation and warming of the chamber.

Inasmuch as authorities agree that no symptoms whatever need develop in these underground workers, if proper care be given them, it is obviously the duty of the municipality to force contractors to exercise that care, even if it result only in the saving of a sandhog's life or in limiting his suffering from the "bends" or the "fleas."

THE ROLE OF THE PANCREAS IN CARBOHYDRATE METABOLISM.

WITHIN the past few months two papers have appeared in German journals which deserve more than passing consideration owing to their important bearing on the rôle of the pancreas in the carbohydrate metabolism of the body.

In the first by O. Cohnheim, it has been conclusively shown that, while neither muscle tissue nor pancreas are individually capable of causing glucolysis, both combined will cause such alterations in added glucose that this is no longer demonstrable by the usual reduction tests. Cohnheim concludes that the glucolysis is referable to the action of a muscle ferment which in itself is inert, but is activated by a second substance derived from the pancreas in a manner perfectly analogous to the action of enterokinase upon trypsin. The rationale of this arrangement is apparent at once, if we bear in mind that in the liquid muscle plasma ferment and kinase could scarcely coexist; some mechanism must hence be available by means of which the kinase is furnished according to demand. This function rests in the pancreas. The degree of glucolysis of which the muscle tissue is capable, on the basis of Cohnheim's experiments, is considerable, and in the case of a grown man would represent a minimum of 200 grams of dextrose.

The second paper, by R. Hirsch, of Hofmeister's laboratory, points out that a relationship exists between the pancreas and the liver which is quite analogous to that demonstrated for the pancreas and muscle tissue. It is to be noted, however, that the liver itself is capable of altering glucose so that it is no longer demonstrable with the usual tests. The degree of this hepatic glucolysis usually varies between 20 and 30, but may attain the value of 50 per cent. If, however, pancreatic tissue is added to the liver tissue the glu-

colysis is much more extensive and occurs with greater rapidity; the loss of glucose may then amount to fully 80 per cent. Hirsch accordingly draws the same conclusion from his experiments as Cohnheim, viz., that the pancreas most likely furnishes an enzyme (kinase), which activates a glucolytic hepatic enzyme, that in itself is inert. The apparently independent glucolysis of the liver he explains by the assumption that the fresh organ, only recently removed from the body, still contains a small amount of the glucolytic kinase, which activates a certain amount of the hepatic ferment.

Further experiments in this direction with animals that have been rendered diabetic by removal of the pancreas are urgently needed. It is interesting to note that in human diabetes several observers have found the liver devoid of all glucolytic activity (Jacoby, Blumenthal and Feinschmidt).

As regards the fate of the glucose, Hirsch has satisfactorily demonstrated that the organic acids, which are always formed during hepatic autolysis, are not referable to this source nor was there any evidence to show that the glucolysis was associated with alcoholic fermentation. He was unable to isolate any products of its decomposition. Cohnheim, on the other hand, states that he could demonstrate carbon dioxide.

One notable difference apparently exists between the results of Cohnheim and Hirsch, namely the relative rapidity with which the glucolysis took place in the pancreas muscle tissue experiments as compared with the pancreas liver mixtures. In Cohnheim's experiments the glucolysis occurred principally within the first twenty-four hours, while with Hirsch no change whatever could be demonstrated during this time; the glucolysis here reached its highest point only after eight days. This difference is no doubt partly due to the different technic employed, viz., Cohnheim's method of complete cellular destruction, on the one hand, which would lead to a complete liberation of the intracellular ferments, and Hirsch's ordinary method of mechanical comminution without material cellular destruction on the other.

The important bearing which both papers have upon the subject of diabetes and the probable rôle which the pancreas plays in the pathology of the disease, suggests itself at once and invites speculation. We forego this temptation, however, in anticipation of further experimental data which have been promised.

HARMONY IN NEW YORK STATE.

In the department of Special Articles the Medical News publishes this week two communications of more than passing interest to the profession in the State of New York.

Dr. McCormack pleads in his masterly manner for unification in our State and presents a plea for the County Society as a basis for the structure of the organized medical profession of the country. He tells us moreover, of the rapid strides that have been made throughout the United States in the matter of healthy organization, and to his plea for union and peace we offer a hearty amen.

That this unification is coming is made evident by the report of the Subcommittee of the joint committee of the New York State Society and the New York State Association, and we most cordially recommend to the profession of this State that this straightforward, dignified and thoroughly feasible plan of procedure be unanimously adopted at the next session of the New York State Society, now ready to assemble at Albany.

The profession in this State has long desired to be united. Here is the opportunity. Unite!

ECHOES AND NEWS.

NEW YORK.

Dr. Thomas Darlington, Commissioner of Health of the City of New York.

The Commissioner of Health under the new City Government of New York City, whose portrait we present this week, is evidently a man of broad and liberal sympathies and of excellent education, who has constantly shown himself deeply interested in the affairs of the community around him wherever he chanced to live and his years of residence in different parts of the country must surely have brought him in contact with men of all kinds and conditions and consequently have given him that experience so necessary for administrative ability—knowledge of men.

Dr. Darlington was born in Brooklyn, in what was formerly called Williamsburgh. He was educated in the public schools of this city and in the Newark, N. J., High School. Later he took a special three years' scientific and engineering course at the University of the City of New York, followed by a three years' course at the College of Physicians and Surgeons of New York, from which he was graduated in 1880.

He practised medicine at Newark, N. J., 1880-82; was then at Kingsbridge, New York City, until 1888; at Bisbee, Arizona Territory, until 1891; and returned to Kingsbridge in 1891, where he has practised ever since.

He was district physician of the Seventh District, Newark, 1882; visiting assistant at St. Michael's Hospital, Newark, 1880-82; surgeon to the New Croton Aqueduct Corporation, New York, 1885-88; to the Harlem Canal Improvement Works, 1888; surgeon to the

Copper Queen Consolidated, and other mining companies, and to the Arizona and South Eastern Railway, Arizona, 1888-91.

After his return to Kingsbridge in 1891 he took an active interest in the affairs of the immediate community with which he was associated. He did not hesitate to give his time to the local school board and ever since the organization of his school district has sat as a member of the board. This was no perfunctory performance of duty for the purpose of attracting popular attention, but he was always known as one of those who would take practical interest in every affair relating to the improvement of the schools and no detail of school management was too trivial to receive his serious thought.

While thus devoting himself to school work he did not neglect other philanthropic opportunities, for instance, during the coal famine of last year, he had charge of the distribution of the free coal supplies contributed to the people of the Bronx by George W. Perkins, of the firm of J. P. Morgan & Co. At the same time he did not fail in his duties to the profession, nor to his patients. He was a faithful member of a number of medical societies, which are mentioned further on. He contributed a number of interesting, some of them very valuable, articles to medical periodicals. In 1888 he wrote on Pneumonia for the *New York Medical Record*, and another paper was contributed to the same journal on The Effects of the Product of High Explosives, Dynamite and Nitroglycerin, on the Human System. This paper was founded on his experience as surgeon to the new Croton Aqueduct Corporation, which was at that time building the tunnel for New York's water supply from the Croton valley. He had seen and studied a number of illustrative cases among the men working in the tunnel.

As a result of this experience he also wrote the article on "Tunnel-Poisoning" for the reference handbooks of the Medical Sciences. Later on, when business interests and his health required him to spend some time in a milder climate, he wrote on The Climate of Arizona and the Effect of Hot and Dry Climates in Disease, which was read before a session of the Congress of American Physicians and Surgeons, held at Washington in 1891. Dr. Darlington has not confined his writing to the strictly medical periodicals and has occasionally written literary articles of scientific bent for the *Youth's Companion*, of Boston, and more purely scientific articles for the *Scientific American*, of New York. He also was an occasional editorial contributor on hygiene and sanitation for the *Mail and Express* and certain other newspapers. All this shows that he is a man of breadth of intelligence and facility of expression. It is no wonder that he was so highly recommended for the position which has come to him. Among those who personally interested themselves for him by recommendation were Right Rev. Bishop Potter, Rev. Dr. George Alexander, Rev. Dr. George C. Bliss, Rev. Dr. G. A. Carstensen, the Rev. Dr. John Campbell, and a large number of brother physicians, as well as many of the prominent politicians of the Bronx.

At the present time Dr. Darlington is connected with the New York State and County Medical Association, the State and County Medical Society, the American Medical Association, the Medical Association of Greater New York, the Harlem Medical Association and the American Climatological Society, of which he is at present the vice-president.

Until his appointment as Commissioner of Health he held the following hospital positions in the Greater City of New York: Visiting Physician to the New York Foundling Hospital, of which he was the President of the Medical Board for two years; Visiting Physician to the Fordham Hospital, to the St. John's Riverside Hospital, and to the Seton Hospital for Consumptives; he is consulting physician to the French Hospital.

Dr. Darlington comes of an old New York family and is a member of the Society of Colonial Wars and of the Tilden Club. He has always been prominent in politics and is one of the incorporators of the Jefferson Club. No interest of the neighborhood in which he lives fails to attract his attention, and accordingly he is a member of the Northside Board of Trade. With all this, he is a comparatively young man, being scarcely more than forty-two years old, and would seem to have the promise of a very brilliant future.

HEALTH COMMISSIONER DR. THOMAS DARLINGTON.

We wish him every success in his new position and have only to say that it distinctly spells opportunity and that a good administration in the Board of Health may have great potency for further political honors.

St. Luke's Hospital.—Drs. Walton Martin and Austin W. Hollis have been appointed on the visiting staff at St. Luke's.

Dr. Lederle Retained.—Commissioner Darlington has announced that upon his motion the Board of Health has voted to appoint former Commissioner Lederle as Consulting Sanitarian to the Board of Health.

Death Rate and Cold Weather.—The recent cold weather and the prevalence of influenza has been responsible for a large increase in the death rate, according to the records of the Board of Health. There were 1,635 deaths reported in the city during the past week, while for the corresponding

weeks in 1902 and 1903 there were 1,497 and 1,320 deaths respectively. The greatest increase was in the number of deaths from lobar pneumonia and bronchopneumonia, a total of 304, against 221 for the corresponding week in 1903, or 143 more. A great many of these deaths followed cases of measles and influenza. Last week 789 cases of measles were reported, as against 584 cases for the week previous, which shows that the wave is increasing at this time.

Report of Post-Graduate Hospital.—The nineteenth annual report of the New York Post-Graduate Hospital has just been issued. It is a neat little booklet of some 110 pages, printed on very good paper, contains a dozen full-page pictures of the staff, operating room, etc., a full account of its charities, cases treated and present needs, and is on the whole a rather de luxe affair as hospital reports usually go. Disbursements for the year amount to $121,850.91; the receipts show a total of $109,634.01, leaving a deficit of $12,216.90, "paid and to be paid by the New York Post-Graduate Medical School." The total sum received by the institution as legacies since 1891 is $33,141.29. The following gives an idea of the number of sick poor reached through its benevolent supporters: Number of patients occupying beds in the hospital during the year, 2,330; number of free patients treated in the dispensary, 19,346; number of free visits by patients to the dispensary, 76,936; number of free days of hospital care, 43,801.

New Doctors' Offices.—A movement is on foot to transform the Madison Avenue Hotel at Fifty-eighth street into a building for doctors' offices exclusively. It is proposed to have as tenants only members of the New York Academy of Medicine, or such others as may be approved by a committee composed of Academy members. The owners will make the building more attractive from a professional standpoint than similar buildings in other cities, provided that they have sufficient encouragement from the response that comes during the next fortnight.

The Spitting Nuisance Again.—Under caption of "Spot the Spitters," the *Commercial Advertiser* speaks editorially in its issue of last Saturday as follows: "Dr. Darlington of the Health Board deserves the hearty cooperation of every public-spirited person in the community in his crusade against the spitting nuisance. It is high time for a new crusade, for during the past few months there has been a recrudescence of this abomination, many old and incurable spitters, who were alarmed into temporary decency by Dr. Lederle's exertions to suppress their activities, having resumed operations in the street and elevated cars under the impression that the war was over. This is especially the case on the elevated trains, and nobody has ever discovered a guard interfering with the offenders.

"Dr. Lederle had printed in convenient little pads warning notices which passengers could carry in their pockets and hand to such persons who called public attention to their need of the elementary instruction in manners and decency inscribed thereon. It requires some 'nerve' on the part of the ordinary unobtrusive citizen, especially if he be small in stature and unskilled in the art of self-defense, to offer one of these slips to a muscular spitter, and it is asking a good deal of him to make the venture. It should not be necessary, in order to have the law enforced, that citizens should take upon themselves police duty."

The Governor's Message.—Among other things the Governor's message contains some paragraphs upon health matters. He says of juvenile delinquents: The complaints made as to the management of the Home for Juvenile Delinquents have brought about two investigations, one by the management and one by the State Board of Charities. Both investigations have shown mismanagement, and both demonstrate the need of immediate action. Peculiar in its character, with limited power exercised by the State, it seems to me that the time has arrived for a change and for the assumption of this work by the State. While it is true that the Fiscal Superintendent has power over expenditures so far as the approval of estimates is concerned, the management of this asylum is entirely under the control of a private corporation. With a board made up of busy men, it is largely in the power of its superintendent to dictate its policies. Although its support comes almost entirely from the State, its officers are without the pale of the Civil Service rules which govern every other State institution and its management is self-perpetuating. Situated upon land which, in the event of removal or discontinuance of the asylum, must revert to the city, the State is annually called upon to contribute for betterments. Its close proximity to the greater city does not permit that healthy outdoor life which would be possible in a rural community; besides, the frequent visitations by many who should be kept away during the period which these youths are confined, is not always conducive to reformation. Experience at Rochester has demonstrated the wisdom of many of these conclusions, and to escape these evils the State has recently consummated the purchase of a large tract of ground for the removal of the Rochester Industrial School. Expense should not be a matter of serious consideration if results can be secured which make possible more complete reformation. The prevention of crime is more desirable than its punishment. Punishment may not be necessary if the playgrounds of the tenement population of our great cities are made attractive. Parks are as desirable as law, and sunshine brings out the best of man's nature. Therefore if the State should replace the asylum at Randall's Island with a similar State institution at some nearby point in an adjacent county, it would be of advantage both to its inmates and to those who could thereafter make use of the grounds now occupied by it for recreation.

Charitable Institutions.—The more modern methods of treatment of insanity, the consequent increase in requirements have brought us to an anomalous condition. Notwithstanding the additional space in hospitals, we apparently have not added to the dormitory capacity of our institutions. This to the unmformed seems like overcrowding and unwise economies. During the past three years appropriations amounting to $3,170,000 have been made to meet these growing demands. In 1898 the capacity was rated at 20,656, and in 1901 it was reduced to 18,078. Thus it would appear that the State's ability to properly care for its insane population was lessened notwithstanding that large sums had been expended to increase the dormitory facilities.

During the past three years provision has been made for 5,147 new beds, so that if the old measurement of capacity of 1898 were in force we should have, when all changes are made, facilities for a population of 25,403. The present population is 24,187, with a rating in capacity of 23,825. From this statement it will be readily seen that under modern methods more cubic space per capita is allowed,

with resultant advantage. In every direction that which is for the benefit of the patient has been furnished. The total cost of maintenance for the year was $4.104.689.23. Better discipline prevails among the employes, and the increased pay for the nurses has produced results which more than justify the additional expenditures involved.

The Control of Consumption.—The *Times*, in a recent editorial note, makes the following comment on the tuberculosis problem. It is a good campaign document. At the anniversary meeting of the New York Academy of Medicine lately held in this city, Dr. W. Gilman Thompson made several statements of great and general interest. That which seemed best calculated to challenge inquiry was the following:

"Within the past decade in the State of Massachusetts alone the mortality from tuberculosis has been reduced exactly one-half."

In view of the fact that between 1890 and 1900 the population of Massachusetts increased from 2,093,889 to 2,855,346, a net gain of 791,457, this statement was so startling as to demand verification. This we have been at pains to make, and the official facts are as interesting as the generalization to which they relate. Between 1885 and 1902, notwithstanding the increase of population above noted, the number of deaths from consumption in Massachusetts shows a decline from 5,955 to 4,685. During the period of fifty years since 1853 the death rate per ten thousand inhabitants of that State has declined from 42.7 to 15.9. This is full of encouragement, and shows without argument the value of State medicine intelligently directed.

Dr. Alfred Hiller, in *Public Health* of London, showed in March last that the change which has been constantly going on in the lessening death rate from consumption constitutes one of the marked features of the vital statistics of civilized countries. If the present rate of decrease in the mortality from this disease is continued uniformly, consumption should wholly disappear from England within the next half century. The same rule applied to Massachusetts would appear to show that the disease will be extinguished in that State within even a shorter period. Its death rate from consumption during ten years, per 10,000 of population, has been as follows:

Years.	Death Rates from Consumption.
1893	23.1
1894	22.3
1895	21.9
1896	21.7
1897	20.8
1898	19.7
1899	19.0
1900	18.3
1901	17.5
1902	15.9

The "white plague" is obviously controllable, and its extinction will be a beneficent achievement of medical science. As Dr. Thompson showed in the paper referred to, comparable results are being attained in the conquest of many diseases. In 1853 the mortality from yellow fever in the districts where it prevailed was as great as from the plague in other countries. To-day it is exterminated in places which have been its home for centuries. Malaria is no longer regarded as the abiding curse of certain localities. Sanitary engineering and systematic mosquito extermination can redeem them, and are doing so. The time is not far distant when the standard of a country's civilization can be better judged by its vital statistics than by those of its trade or finance.

PHILADELPHIA.

Dinner in Honor of Dr. Mitchell.—Members of the Franklin Inn gave a dinner January 6 in honor of the President, Dr. S. Weir Mitchell. Poems were read by Dr. Mitchell and others.

Reorganization of Bureau of Health.—The first move in the reorganization of the department of Public Health and Charities has been made by appointing Dr. A. A. Cairns Chief Medical Inspector. The vacancy created by Dr. Cairns's promotion will be filled by Dr. Thomas J. Beatty, at present an assistant medical inspector. Dr. J. Howard Taylor, the former chief medical inspector, on account of age, asked to be relieved from the responsibility of that position, and will be made an assistant medical inspector. There are still 37 additional assistant medical inspectors to be appointed. Nearly 200 physicians have already taken the examination for these positions with the prospect that many more will enter the competition.

Physicians May Vary Charges.—The right of physicians to charge fees in accordance with their patient's financial standing has been upheld by Judge Ashman in a recent opinion handed down in the Orphan's Court. The Judge said: "In my opinion, a physician may fairly demand, as the exceptant admitted was his practice, a maximum and a minimum rate of pay, just as the circumstances of his patients shall seem to indicate will be proper. It is true that a physician is unlike a tradesman, who has different qualities and therefore at varying prices; he is bound in every case to give his best service. But it does not follow that this service is worth the same in every case. The moral distinction between the code of the doctor who in theory has but one charge and in practice two, and his ruder but more candid brother who declares at the outset that he has a maximum and a minimum charge, fades away on the slightest analysis into a play upon words."

College of Physicians.—At the annual election held on January 6, Dr. Arthur V. Meigs was elected president, and Dr. James Tyson vice-president of this society. The majority of the minor officers were re-elected.

Polyclinic Hospital.—The annual "Corporator's Day," held January 11, was signalized by the opening of the new nurses' home, children's ward, and private rooms, these being part of the extensive improvements made during the past eight months. The work of the Polyclinic is increasing yearly, the clinics last year averaging 326 cases daily, and 1,173 persons were admitted to the wards. In the accident wards over 7,000 cases were received. Three adjoining properties are owned by the corporation, and on these an addition to the hospital will be erected as soon as $75,000 can be raised.

White Haven Leads in Consumption Cures.—As a result of a recent thorough investigation of the White Haven sanatorium it is said that this institution shows better results than those of any other similar institution in the world. The investigation was made by Drs. Flick and Stanton of the Phipps Institute and the staff of the sanatorium. After examining the weight records, temperature charts, etc., each of the 103 patients was given a thorough physical examination. This showed that every one was

making progress toward recovery. The greatest progress has been made by the tent cases who remained in their accustomed place during the recent cold spell, though the temperature was 28° below zero. An exhibit will be made at the tuberculosis convention in Baltimore, January 25-28. No fear will be felt from comparison with the work of famous European institutions. Severe weather has caused suspension of work on the new buildings which, when completed, will make possible the accommodation of more than 300 patients.

Pennsylvania Hospital.—The oil painting of Dr. Thomas G. Morton presented to the Pennsylvania Hospital by a number of contributors was unveiled on January 11. The portrait was presented to the hospital by Dr. J. C. Wilson, on behalf of the Board of Trustees, and was accepted for the hospital by Dr. Arthur V. Meigs. Dr. Morton was connected with the institution for a period of forty years, many improvements and new buildings being added during this time as a result of his untiring efforts in its behalf.

Tropical Medicine.—The first public meeting of the American Society of Tropical Medicine was held at Houston Hall of the University of Pennsylvania on January 9, 1904. Dr. James M. Anders, a vice-president of the society was in the chair. A brief statement of the scope and workings of the society was made by the secretary, Dr. Joseph McFarland, after which the speaker of the evening, Dr. James Carroll, of the United States Army, and a former member of the commission appointed by the Surgeon-General of the United States to investigate yellow fever at Havana, Cuba, made an address upon "The Etiology of Yellow Fever." Dr. Carroll reviewed in an interesting manner the early researches upon the etiology of the disease, giving special consideration to the work of Fraire, Sanarelli and Finlay, then reviewed the work of the commission whose researches have now become world-wide, and resulted in the proof that we have no reason to believe that yellow fever is propagated by any other means than the bites of the mosquito known as *Stegomyia fasciata*. It is only the female mosquito that bites, therefore, only the female mosquito that becomes infected. The mosquito is able to impart the disease only after twelve days have elapsed since its own infection, and may retain the ability to infect after many months, providing it does not meet with destruction in the meantime. A description of the experiments made to show the infectiousness of fomites, seemed to exclude all possibility of yellow fever being transmitted directly. It was with pleasure that the speaker reported that confirmation of all of the work of the United States Commission had been given by the more recently appointed French Commission.

CHICAGO.

New Medical Journal.—The first issue of the *Journal of Infectious Diseases*, the new scientific publication endowed by Mr. and Mrs. Harold F. McCormick, has made its appearance. The journal has been established in connection with the Memorial Institute for Infectious Diseases, founded by Mr. and Mrs. McCormick in memory of their son, Jack Rockefeller McCormick, who died of scarlet fever. The new magazine is devoted to the publication of original investigations dealing with the general phenomena, causes, and prevention of infectious diseases, both of known and unknown origin. It is to be published at irregular intervals, as rapidly as the amount of available scientific reports permits. The publication costs some $15 a year; it is estimated that the endowment is about $375,000. The first number of the journal contains eleven articles by bacteriologists and pathologists at the Universities of Michigan, Minnesota, and Chicago, from the Massachusetts Institute of Technology, and from the Government Laboratory at Manila. The editors of the journal are Dr. Ludwig Hektoen, and Dr. Edwin O. Jordan, of the University of Chicago. Dr. Frank Billings is associate editor.

Effects of the One Delivery a Day of Milk to Consumers.—The Bulletin of the Health Department has this to say relative to the effects of one delivery a day of milk to consumers, which contributed to maintain the high death rate. The disastrous effects on child-life, threatened by the barbarous action of the Milk Wagon Drivers in refusing to make more than one delivery of milk a day, were largely overcome by the relatively cold weather of the summer by unusual effort in milk inspection, including the employment of an emergency corps of inspectors, known as milk scouts, and by an enormous development of the sterilized milk service fostered by the Woman's Club and Hospital Association. As a matter of record, the mortality of infants and young children during 1903 was lower than ever before known—8.8 per cent. less than in 1902, 9.4 per cent. less than in 1901, and 57 per cent. less than the average of the period between the two census years, 1890 and 1900. In 1891 the deaths of children under five years of age numbered 110.38 in every ten thousand of population; in 1903 they were only 41.7.

Mortality for 1903.—The total deaths for 1903 will number 28,940, including the 587 deaths from the Iroquois Theatre disaster, instead of the 28,353 given in the statement of mortality for the year. This will increase the death rate from 15.04 to 15.35 per one thousand. Deaths from violence were already more than 12 per cent. in excess of the average for the period since the census year 1900; but these 587 theatre deaths swell the excess to 41.5 per cent. over the yearly average of violent deaths. Even with this addition to the total mortality, the death rate is 6 per cent. lower than the yearly average since 1892, although it is 8.2 per cent. higher than that of 1901, and 5.3 per cent. higher than that of 1902.

New Training School for Nurses.—It is stated on good authority that the Cook County Hospital will soon establish a training school for its own nurses.

Resident Medical Director.—Dr. P. Maxwell Foshay, of Cleveland, Ohio, intends to locate in Chicago early in April, and will be the resident medical director of the Mutual Life Insurance Co., of New York, which has recently been opened here.

CANADA.

Smallpox in Cape Breton.—The smallpox situation throughout the island and county of Cape Breton is becoming very acute and the local health authorities are somewhat puzzled as to what action they shall take to prevent an epidemic of the disease. In several districts of the county the disease has already reached that stage and grave fears are entertained lest it should secure a footing in Sydney. At several places the railway stations have been closed for several weeks.

Appointment.—Dr. W. F. Langrill, Hamilton, Ont., who has been Medical Health Officer of that city for some years, has been appointed medical superintendent of the Hamilton General Hospital, to succeed Dr. McLaren. The salary is $1,800 per annum, and there were a large number of applicants for the position from local and outside physicians. The Governors of the Hamilton General Hospital have decided to cooperate with the Toronto General Hospital in their

endeavor to get the Ontario Government to increase the amount of the grants to the various hospitals of the province.

Dental Course to be Established at McGill University.—At a regular meeting of the corporation of McGill University recently, it was decided to establish a dental department in connection with the Faculty of Medicine. With this object in view certain of the professors of the existing dental college of the province of Quebec, at present not more than three in number, who are not members of the teaching staffs of other universities will be appointed by the governors, professors in subjects in the dental department of the Faculty of Medicine. It will be the rule also that all professors of the Dental Department shall together form the executive of the Dental Department, of which also the Dean of the Medical Faculty shall be ex-officio, chairman. The course of study shall be determined by the Executive of the Dental Department subject to the approval of the Faculty of Medicine. The University shall confer upon students who have completed the required course, and who have passed the required examinations, the degree of master in dental surgery (M.D.S.). Not less than one year after graduation as master in dental surgery, the degree of doctor in dental science (D.D.S.) shall be conferred upon such graduates as have either: (*a*) Presented at any time later than one year after graduation a satisfactory thesis, embodying original research, upon some branch of dental science, or (*b*) have at the completion of three years, passed satisfactorily an examination in advanced dentistry, the scope of which shall be determined by the Faculty of Medicine.

Laboratory for Queen's University, Kingston.—Queen's Medical Faculty have asked the Ontario Government to establish in that city a branch laboratory in connection with the Board of Health, for the examination of pathological specimens. Such a laboratory would be an immense benefit to Eastern Ontario. For instance, in order to get specimens tested free of charge, physicians in the east part of the Province of Ontario, have to send them to Toronto, where the Government laboratory is situated. If a branch were established in Kingston, the results would be secured much quicker. It is stated that this branch laboratory has almost become a necessity, and there is no doubt but what the Government will accede to the request of Queen's. It would be likely under the direction of Dr. W. T. Connell, professor of bacteriology and pathology in Queen's.

Some Interesting Observations on Life Insurance.—Dr. Andrew MacPhail, of Montreal, has been making interesting observations and investigations as to the liability to earlier death of persons rejected by insurance companies, as compared with the liability of those accepted. He took note of 5,115 applications, of which 409 were rejected cases, and then followed up so far as he could, the after record of the rejects. He traced 235 of them, of whom during fifteen years only 31 died, while according to insurance actuarial figures, had the 235 been "sound lives," no less than 25 should have died in that period. Dr. MacPhail's conclusions are that those who are rejected by insurance companies, as a rule, manage to live about the usual average. One reason for this may be that in consequence of life insurance rejection, an ordinarily steady man takes special care of himself.

Sanatorium By-Law Carried.—At the Toronto municipal elections, which were held in that city, Jan. 1, a by-law to raise $50,000 for the establishment of a municipal consumption sanatorium, was submitted to the rate-payers, the vote standing: For, 4,071; against, 3,822. This is somewhat significant, as all of the local papers opposed the passage of any such by-law, in view of the great and good work which had been accomplished by the National Sanitarium Association.

The Prevention of Tuberculosis in Montreal.—The Montreal League for the Prevention of Tuberculosis is issuing an appeal for funds to enable it to carry on the war against consumption in that city. The League needs money now to establish free consulting rooms and intends as soon as possible to erect a sanatorium on Trembling Mountain near the city, at which place the Provincial Government has made a grant of land for the purpose. The aims of this League are intensely practical, as they are dealing with every reported case. The League is under the patronage of the Governor-General, Lord Strathcona, Sir Louis Jette and Sir Wm. Macdonald, while the Hon. Senator Drummond is the President.

Typhoid Fever Epidemic in the Suburbs of Montreal.—There are now about 600 known cases of typhoid fever in the suburbs of Montreal, in Westmount, St. Henri and St. Louis. The hospitals of Montreal are obliged to refuse any more patients suffering with the disease. At the Royal Victoria there are 40 cases; at the Western, 6 cases; there are 15 in the Homeopathic Hospital; at Notre Dame, 13 cases; at the Hotel Dieu, 20 cases; at the General Hospital, 28. The one thing which these municipalities have in common which is not shared in by the City of Montreal proper, is the water supply. During the last two years the character of this water was severely assailed, but not the water alone, but the milk supply is being subjected to exhaustive and detailed examination. The municipality of St. Henri has requested the provincial Board of Health to make an analysis of the water and the result is awaited with a great degree of interest, as the Power Company which supplies the water, claims that it is not at fault.

GENERAL.

Berlin Hospital.—Berlin is to have a new municipal hospital with 1,700 beds. It will cost over $2,000,000.

British Journal of Children's Diseases.—This is the title of a new journal to be edited by Dr. George Carpenter in London. The first number appears in January, 1904. As European editor for *Pediatrics*, Dr. Carpenter has built up in this country, through this widely circulated journal, a host of well wishers. We cordially hope for the new venture, the only one of its kind in Great Britain, a glorious success.

Malaria in Istria.—The Austrian Government has undertaken to exterminate malaria on the coast of Istria. Several stations have been established at which quinine is furnished free, and patients are carefully screened so as to prevent mosquitos from spreading the infection.

Prize for Dr. Schleich.—Prof. Karl Schleich of Berlin has received from the University of Würzburg a medal and a 1,000-mark prize for the discovery of the Scheich method of making surgical operations painless.

First French Congress of Climatotherapy.—This congress will be held at Nice, during the Easter vacation, from April 4 to 9, 1904. Professor Chantemesse has been named president; the vice-presidents are: Professor Renaut, Lyon; Professor Grasset, Montpellier; Professor Calmette, Lille; Dr. Balestre, Nice. The discussions will bear on five questions: The climate of the French Mediterranean coast; reporting secretary, Dr. Chiais, Mentone. Adaptation of the individual to climate; reporting secretary, Dr. Manquat, Nice. Influence of the French Mediterranean coast climate on tuberculosis and tuberculous patients. The influence of climate on the French

Mediterranean coast on rheumatism and on those subject to rheumatism; reporting secretary, Dr. Moriez, Nice. Disinfection of towns; reporting secretary, Dr. Balestre, Dr. Camous, Nice. For particulars write to Dr. Hérar de Bessé, Secretary General of the Congress, Beaulieu-sur-Mer.

OBITUARY.

Dr. Edward A. Everitt died at his home in Burlington, Pa., Nov. 22, 1903, of angina pectoris; he was born August 11, 1831 in New York State. He attended lectures at Ann Arbor, Mich., and Albany Medical College, where he was graduated with the class of 1856. Dr. Everitt was a member of the Bradford Co. Medical Society and had been a resident of Burlington, Pa., many years.

Dr. James Ferguson, proprietor of the Central Valley Sanitarium died last week at that institution. He was sixty-two years old and unmarried. He had conducted his widely known institution twenty years.

Dr. Henry A. Chors, thirty-seven years old, was found dead in bed in his room at 108 Concord Street, Brooklyn, last week. Heart trouble is supposed to have been the cause of his death.

Dr. Cornelius E. Billington, for many years a practising physician in New York City, and the author of "Diphtheria and Its Treatment," died at his home, 85 Madison Avenue, on Friday from a complication of diseases. He was the son of Linus Billington, a Presbyterian minister, and was about 60 years old and single.

Dr. Charles G. Frowert, one of the best known physicians of Philadelphia, died suddenly last Saturday. He was born in Philadelphia in 1850.

Dr. Frank W. Shaw, thirty-eight years old, of 327 Greene Avenue, Brooklyn, died in the Seney Hospital, that borough, last week. Dr. Shaw was a native of Lockport, N. Y., and a graduate of the College of Physicians and Surgeons of New York of the class of 1889. For two years he was one of the staff of the Presbyterian Hospital. He was a member of the Kings County Medical Society and assisting visiting physician to the Seney Hospital.

Dr. George H. Hackenburg, a noted scientific man, who is credited generally with being the originator of the telephone idea, died at his home in Austin, Tex., on Friday night. He was eighty years old. In 1864 he wrote an article which was published in *Godey's Lady's Book*, making public his ideas of the principles of the telephone, which were afterward practically applied by others. The article attracted wide attention. He was at that time living in Ohio. He was born in Union County, Pa., and was a graduate of the Medical College of New York University. He practised medicine in New York State for several years and was a frequent contributor to magazines on scientific subjects. He moved to Texas in 1873.

Dr. Stuart H. Reed died Jan. 6 from pleuro-pneumonia, after a brief illness. He was born in South Carolina, Oct. 10, 1854, and was the son of the Rev. Edward Reed. When twelve years old he located at Coxsackie, N. Y., with his uncle, Alexander Reed. In 1874 he was graduated from Claversack Seminary of Columbia County, N. Y., and was graduated from Williams College, Williamstown, Mass., in 1878. In 1881 he was graduated from the College of Physicians and Surgeons of New York City. In September, 1882, Dr. Reed came to Madison, and was a member of the Board of Chosen Freeholders for Chatham Township. He was elected a member of the first Board of Councilmen, and served several years on the Board of Education. He was an active member of the Morris County Medical Society. He also served for a number of years as physician for the Board of Health of Chatham Township, and was at his death a member of the Commission of Appeals.

Dr. William H. Ireland died at his home, 330 Cooper Street, Camden, N. J., last Tuesday morning, aged sixty years. He was one of the oldest practitioners in Camden, and at one time served as County Physician for three years. He was born at May's Landing, and graduated from the University of Pennsylvania in 1867. He had been President of the County and City Municipal Societies, and a life delegate to the State Medical Society from the County Society. He was connected with various college societies, including the Alumni of Pennsylvania University.

SPECIAL ARTICLES.

HARMONY IN THE STATE.

New York, January 12, 1904.

The Subcommittee of the Joint Committee on Conference presents the following plan of consolidation of the Medical Society of the State of New York and The New York State Medical Association for the information of the medical profession of this State.

The plan is the result of much labor, legal investigation, and careful thought and attention on the part of the Committee; and the organization recommended for the consolidated corporation is one which is now in successful operation in thirty-two States of the United States. It is based upon the form of government of the United States, and care has been taken not to interfere in any way with the autonomy of county organizations, or with their property or other vested rights.

We respectfully urge the members of the profession to promote by all proper means the passage by the legislature of the proposed act prepared by counsel for the Committee, authorizing the consolidation of the Medical Society of the State of New York and The New York State Medical Association. The proposed Act will be introduced in the Assembly or Senate in due course, and, if passed, will authorize the consolidation upon terms to be agreed upon by the two corporations. The consolidated corporations will be known as the Medical Society of the State of New York.

Before the agreement for consolidation under the proposed Act will become operative or effective for any purpose, it must be authorized or ratified by the vote of each corporation at an annual meeting, or else at a special meeting of each corporation called to vote upon the agreement, and it must also be approved by the County Medical societies in affiliation with the Medical Society of the State of New York.

The agreement to be recommended by the Committee for adoption in accordance with the terms of the Act will contain provisions for giving effect to the following stipulations:

1. All assets and liabilities of The New York State Medical Association shall be transferred to and vested in and assumed by the Medical Society of the State of New York at the time of consolidation.

2. Expert accountants shall be employed to ascertain the assets and liabilities of each corporation, and their reports shall be submitted with the agreement for consolidation.

3. All members of The New York State Medical

Association in good standing at the time of the consolidation shall be admitted to membership in the Medical Society of the State of New York.

4. All members in good standing of the County medical societies now in affiliation with the Medical Society of the State of New York shall be admitted to membership in the Medical Society of the State of New York.

5. All members in good standing of The New York State Medical Association shall be admitted to membership in the County medical societies for the counties in which they respectively reside.

6. All members in good standing of the Medical Society of the State of New York shall be admitted to membership in the County medical societies for the counties in which they respectively reside.

7. The plan of organization, constitution and by-laws of The New York State Medical Association, with such modifications as have been agreed upon by the Committee, shall be adopted as the plan of organization, constitution and by-laws of the Medical Society of the State of New York.

8. The following proposition shall be submitted by referendum to the vote of the members of the consolidated corporation, namely:

"The principles of medical ethics of the American Medical Association, being suggestive and advisory, shall be the guide of members in their relations to each other and to the public."

9. The Medical Society of the State of New York will petition the legislature for the passage of such further enabling act as may be necessary, if any, to carry the consolidation agreement into effect.*

AN ACT

TO AUTHORIZE THE CONSOLIDATION OF THE MEDICAL SOCIETY OF THE STATE OF NEW YORK AND THE NEW YORK STATE MEDICAL ASSOCIATION.

The People of the State of New York, represented in Senate and Assembly, do enact as follows:

Section 1. The Medical Society of the State of New York, incorporated by or pursuant to chapter one hundred and thirty-eight of the laws of eighteen hundred and six, entitled "An act to incorporate medical societies for the purpose of regulating the practice of physic and surgery in this state," and continued by chapter ninety-four of the revised laws of eighteen hundred and thirteen, passed April tenth, eighteen hundred and thirteen, entitled "An act to incorporate medical societies for the purpose of regulating the practice of physic and surgery in this state," and The New York State Medical Asociation, incorporated under chapter four hundred and fifty-two of the laws of nineteen hundred, may enter into an agreement for the consolidation of such corporations, setting forth the terms and conditions of the consolidation and the mode of carrying the same into effect.

Each corporation, party to the agreement, may petition the Supreme Court for an order consolidating the corporations, setting forth in such petition the agreement for consolidation and a statement of all its property and liabilities and the amount and sources of its annual income. Before the presentation of the petition to the court, the agreement must be approved by a majority of the vote lawfully cast at an annual meeting of each corporation, separately, or at a meeting of each corporation separately and specially called pursuant to its by-laws for that purpose, and a certificate of such approval, verified by the president and secretary of the meeting shall be annexed to the petition.

On presentation of the petition, the certificate of approval and the consolidation agreement, and on such notice to interested parties as the court may prescribe, and after hearing such interested parties as desire to be heard, the court may make an order for the consolidation of the corporations on such terms and conditions as it may prescribe.

When the order is made and duly entered, the corporations, parties to the agreement, shall be one corporation under the name "Medical Society of the State of New York," which shall not be deemed to be a new corporation, but to be a continuation of the Medical Society of the State of New York, incorporated in eighteen hundred and six. A certified copy of said order shall be filed in the office of the Secretary of State. All the property belonging to the corporations so consolidated shall vest in the said Medical Society of the State of New York, which shall have all the powers, rights and privileges possessed by either corporation at or immediately prior to the consolidation, and which shall be subject to all of the liabilities of each corporation.

§ 2. This Act shall take effect immediately.

Respectfully submitted,

A. JACOBI,
GEORGE RYERSON FOWLER,
E. ELIOT HARRIS.

* This bill has just been introduced.

A PLEA FOR UNIFICATION AND UNIFORM ORGANIZATION.

BY J. M. MCCORMACK, M.D.,
OF BOWLING GREEN, KY.;
CHAIRMAN OF THE COMMITTEE ON ORGANIZATION OF THE AMERICAN MEDICAL ASSOCIATION.

To the Medical Profession of the State of New York:

AFTER correspondence on the subject with members of the Joint Conference Committee, and others, more especially on the Society side, I have been requested, as chairman of the committee which has had this work in charge from its inception, to prepare for publication an explanation of the plan of organization for state and county societies which has been so generally adopted in the last two or three years. As the plan was prepared and is recommended for universal adoption, is already in satisfactory operation in 32 states and in over 1,500 counties, and is likely to be adopted in nearly all of the other states as soon as their annual meetings occur, as the subject is one of interest at this time to every member and well wisher of our profession, and, more especially, as the preparation of the plan for general adoption, makes my committee as responsible to you for anything wrong in it as though we were members of your county and state societies, it seems entirely proper that the request should be complied with, and an attempt will be made to place beyond question the truth of the following propositions:

1. That existing professional conditions and estrangements are useless and senseless, that they are hurtful almost beyond calculation to both the profession and the public welfare, and that they are remediable.

2. That the plan of organization is based upon our system of civil government, that it was prepared with much care and unselfishness, and that it contains nothing untried, experimental or impracticable.

3. That the county society is not only the unit of the organization, but the source of all authority and power in both the state and national bodies through a representative delegate system, and it is also the only portal of entry to the entire society system.

4. That coincident membership has been an old and

perfectly satisfactory method in many states, is essential to complete organization, and that it is just and right. It would be as unfair to permit a physician to become a member of his county society and enjoy all the benefits arising from the labors of the state society, as to permit one to become a citizen of Ithaca or Troy, without becoming a citizen of the State of New York and bearing the burdens and responsibilities of the same.

5. That amendment of any part of the plan is purposely made easy and is controlled by delegates from, and responsible alone to, the county societies.

6. That the time has come for unification, and that, while union under a defective plan, which the joint body could modify and improve for the common good, would be far preferable to a continuation of existing conditions, the one now proposed has been found excellent and practical after full trial in other states, and, having been prepared away from New York contentions and controversies, it offers a basis for compromise honorable alike to both factions and to neutrals.

In order to establish these propositions clearly and satisfactorily, a brief history of this reorganization movement is necessary. From the very outset the magnitude of our task grew upon us. Although in name medical societies—city, district, state and national—existed without number, and medical machinery and high-sounding official titles were provided sufficient for the civilized world, membership in most of them was small and little more than nominal, and, outside of a few states and localities, the profession was so torn with dissensions that it was in chronic disgrace in its own and the public estimation, and in a large measure robbed of its power, by legislation or otherwise, to help either itself or the public, for whose benefit it was supposed to exist. Into a profession already so overcrowded that there was less room and remuneration for the average man than for clerks and skilled laborers, commercial medical colleges were annually turning loose thousands of new graduates, many poorly equipped for intelligent modern practice, and all of them without an hour's training in professional conduct, business methods, or the importance of society membership, in which all should have been drilled with the care due to subjects to become of so much importance as soon as they come to serve the public, and face the problem of earning an honorable livelihood.

As a result, largely, of such lack of training, we found that of the 120,000 registered physicians in this country, only about 30,000, one in four, had ever been members of any kind of society, local, state or national. Most cities were little better organized than the country districts, a large submerged element being often found within an easy walk of imposing medical and post-graduate schools, libraries and hospitals, who had long lost hope of advancement, looked upon their profession only as a doubtful means of support, while those in the higher ranks wrangled and slandered one another, and brought odium on all, and Christian Science and other forms of bald, naked quackery, took the cream of a patronage which a united, self-respecting and honored profession would have deserved and received.

It was soon found, however, that these conditions, deplorable alike to the profession and public, were not universal. In Alabama, for instance, under a model plan of organization there resulted a united profession, with over 1,500 of the 1,700 physicians members of the county and state societies. Medical opinion was sought for the guidance of law-makers, executives and courts, the profession was honored and independent, and quackery was unknown. Kentucky, striving for the same ends under less perfect methods, had had no itinerant or advertising doctor within her borders for ten years, and the profession was aspiring to its rightful place as a directing force in public affairs. In a dozen cities also, usually of the lesser rank in population, under similar influences, harmony, co-operation, and measurable prosperity prevailed, and was increasing.

Inquiry soon demonstrated that the personnel of the profession was much the same everywhere, and the difference in the conditions found were apparently entirely due to difference in methods of organization. After all proper allowance for personal equation in rulers, governments are liberal or despotic as determined by their organic laws, and, probably quite as much as with a nation, the constitution and by-laws of a medical society will set the compass and shape the policy which will largely determine the future for both itself and its individual members.

Influenced by such belief and considerations, my committee began its work four years ago by grouping these provisions for state and local societies which had resulted in the most effective organizations, and with great care made our first draft of a constitution and by-laws for submission to, and discussion by, conferences of leading men in the various medical centers where there was a reasonable degree of harmony. Later the improved draft was published in the medical press and in pamphlet form and given the widest possible publicity. As we were performing an important, unselfish and gratuitous public service for the common good, advice and frank criticism were cordially asked from all, and these came freely and helpfully, especially from the better organized states and cities.

With such assistance, and in the light of such criticism, keeping always in mind that the plan should be democratic and conform to our methods of civil government, with local self-government by the county societies as the central idea, a simple but comprehensive system was gradually evolved, almost ideal in its outline and possibilities, which, after full trial under the most diverse professional conditions, has proven entirely practical. It is so flexible that it can be as easily adapted to the Cook County Medical Society at Chicago, with 1,800 members, as to sparsely settled counties in North Carolina or California with ten members. Under its operations in one year in Michigan the membership increased from 560 to 2,100; in Kentucky from 390 to 1,000; in Tennessee, from 300 to over 1,000; in Missouri, from 400 to 1,500; in Arkansas, from 190 to 703, and in like proportion in every other state adopting it.

It is a thoroughly democratic and American plan, using these much abused terms in their broadest and best sense. As has been said, the county society is made the broad foundation and source of authority for everything, as well as the portal of entry to both the state and national bodies. If a physician stands well enough at home to secure membership in his county society, he is eligible for membership and for any position of honor or trust in the state and national bodies, and, if he loses membership at home, subject to the right of appeal, he loses out everywhere.

The house of delegates, the legislative and business body of the State Society, like the general assembly of a state, is composed of representatives from the county and district societies, and such delegates are freed from political influence so far as possible by making them ineligible for any of the offices within their gift, and they are responsible alone to the constituencies electing them. As they are in session but two or three days, in order to make the transaction of any business possible, unlike senators and representatives, they sit as one body. This gives a body small enough for deliberative work, and yet gives county societies remote from the place of meeting, and all others, an equal and

only an equal, voice in all business affairs, if only the delegates are in attendance.

Carrying out the same principle of local self-government, this house of delegates, made up directly from county and district societies, elects from the general membership the delegates who, in turn, compose the legislative body of the American Medical Association. As in the house of delegates of State societies, this being a small body, with its members carefully selected and made ineligible for any other position, with the terms of half the members expiring each year, so as always to have men of experience in it, and which can remain in session, if necessary, after the general meeting adjourns, it was hoped to provide a body in which the interest of the profession and of scientific medicines might be considered and promoted in the broadest way.

The question of coincident membership in county and state societies is one which should require little explanation in New York. It has given satisfaction in the association, and has, of course, been under the observation of the society people. You have also had ample opportunity to observe the results of it in the neighboring States of New Jersey and Connecticut, where it has been in operation for years. It has been long the practice in Alabama, with the result that about 90 per cent. of the profession are permanent members, as well as in Massachusetts, Pennsylvania and Indiana, and recently in a total of thirty-two States. It is only one feature of the work, but it is so important that any complete or systematic organization of the profession is impossible without it. Besides, the justice of it is beyond question. It would be as obviously unfair to permit one to join his county society and enjoy all the benefits of the State society, arising from its legislative, educational, and other expensive and responsible labors, without assisting in its support, as it would be to permit a man, if one could be found so foolish and selfish as to ask it, to become a citizen of Buffalo, Syracuse or Rochester, and enjoy all the benefits and protection of the state government, without becoming a citizen of New York.

It is true that in nearly every state where this plan of organization has been proposed, as was natural and to be expected, academic and purely theoretical objections have been made to some feature of it, usually to the council, the house of delegates, or to coincident membership. Such objection has always been made in advance of a trial of them, and they have been confined almost entirely to States which have been practically without organization heretofore. Conditions in Iowa illustrate this point well. The county society at Dubuque, which has reorganized and applied for a charter within the last ten days, raised many such theoretical objections to the plan before they had tried it, while 88 counties in the same state, organized under it, and realizing its practical benefits, are loud in praise of the very provisions to which their worthy neighbor at first objected. It is a source of much encouragement that this has been the experience of over 1,500 counties which have reorganized.

It would be pleasant to comment on each provision of the plan in detail if space permitted. Suffice to say that it was intended only as the foundation and frame work for a broad and comprehensive system to be recommended for universal adoption, that nothing was included except for what appeared the best of reasons, and that it is susceptible of infinite elaboration and improvement in detail as the profession of any state or county develops under the catholic and cooperative spirit which it inculcates, and which is so much to be desired.

Attention is called to the fact also, that much contained in the by-laws, where a wide departure is made from the brevity and compactness of expression adhered to in the constitution, is suggestive and educational in character, much of which would not be necessary if such an organization as is contemplated was already in existence. We thought it as important, under existing conditions of discord and demoralization, to furnish incentives to this work, to give practical and detailed information as to how it was to be done, and to put the reasons for it all within easy reach of those whose duty it would be to discuss the subject and do the work as to furnish the framework of which, as the result of years of devoted labor, they were to make a complete edifice occupied by a united and harmonious, or at least a decently cooperative and self-respecting profession. For many reasons, too, amendment to the plan is purposely made easy. If after trial in any state anything is found obsolete or impracticable, it can be easily eliminated or replaced by something better adapted to existing needs, by the house of delegates, subject to instruction from the county societies, at any regular meeting, after such amendment has lain upon the table for one day.

Unification in New York has been so long the dream and hope of its own profession, as well as of the entire country, that now, when this seems about to be realized, it may be that a majority of you will consider mere methods and details of organization important only in so far as they are likely to hasten or delay the union. In part, this view of the matter is both natural and correct. A cordial union under a defective plan, which could be modified and improved to meet the needs of the joint body, when there would be unity of purpose and interest for the common good, would certainly be far better than to perpetuate the two bodies, even with model organizations for both, with the strife, discord and loss of public respect inseparable from such conditions anywhere.

Still, if it can be shown, as the writer believes will appear upon the most critical investigation of what is now proposed, that it furnishes ready to your hands a plan of organization to which you may build and add with confidence in the results, and which will at the same time hasten unification by furnishing a basis of compromise between factions so long divided that suspicion and jealousy have become so much mental habits that neither will be willing to accept what the other proposes, it should, and I am sure will, receive respectful consideration at your hands.

In the era of good feeling and enthusiasm which must follow unification, under such a broad, liberal and comprehensive plan, which would give an equal voice and power to the individual doctor in every county, organization should and would make rapid strides, and the possibilities opened up to your profession, and then to your people, would be almost beyond conception. In the face of such possibilities, standing upon the threshold of such accomplishments, petty prejudices and personal interests appear so insignificant that they should find no place in large minds.

Then, as New York would be in perfect alignment with her sister States, with proper education and effort, everything desirable would, in time, be brought within reach of the united profession of the entire Union. The complex and difficult problems before the profession of this country incident to our unprecedented advance in population and civilization, and which must be solved by it, if they are to be solved, will tax its highest intelligence and energies at its best. Provision can then be made for continuous scientific research, and for systematic collective investigation into the causes and prevention of diseases, upon the large, generous lines de-

manded by the vast interests involved. The vexed problem of medical education can then be taken up with confidence and justly and wisely solved. Reciprocity in licensure and membership between states can then be discussed from the standpoint of the common good and settled upon some equitable basis. Constructive statesmanship can be substituted for the narrow, time-serving political methods of the present in municipal, state and national public health affairs, and our great profession, great even now in spite of its divisions, united, elevated and ennobled, would come to occupy its rightful place as one of the greatest of modern forces for the guidance and protection of our people. It would be an honor, even to New York, to lead in a reform promising such results, and to set an example in complete organization, which less favored and weaker States would imitate with both pride and profit. First of all, leading to all and above all, in the words of your victorious commander, greater in magnanimity even than in war, "Let us have peace."

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Own Special Correspondent.)

London, December 19, 1903.

HERBERT SPENCER—MEDICAL EDUCATION IN LONDON—THE ORIGIN OF CANCER—THE SERUM TREATMENT OF TUBERCULOSIS AND MALIGNANT DISEASE—DOCTORS IN PARLIAMENT.

Herbert Spencer, whose remains were cremated at Hampstead a few days ago, taught the world more by his life than by his philosophy. In spite of the indifference of a public which cared for none of the things he had to say, ill health, which made intellectual work at all times difficult and often impossible, and limited means, he struggled against adverse circumstances and finished the gigantic task to which he had given his life. His endeavor was the noblest that could animate a man, and it is a pathetic illustration of the futility of so large a part of human effort that his work was in great measure a failure. It may indeed be said that his philosophy died before himself. This is the usual fate of systems. Huxley put his finger on Spencer's weakness when he said that if the author of *Synthetic Philosophy* wrote a play the catastrophe would be the killing of a large induction by a fact. Spencer was an intellectual force of the first order, but his strong individualism led him in more than one direction into the company of "cranks." His utterances on medical matters betrayed a distinctly hostile bias which was difficult to reconcile with his general attitude toward science. He advocated free trade in the practice of medicine and seemingly had persuaded himself that the enforcement of regulations against certain infectious diseases was an unwarrantable interference by the State and a form of protection that could find no excuse in the eyes of political philosophy. But it was not only from this point of view that he condemned vaccination. In his very last book, Facts and Fallacies, published two or three years ago, he revealed himself as an "anti-vack" (*sit venia verbo*—it is Jenner's own) of the most virulent type. If he does not in good set terms denounce vaccination as responsible for cancer, consumption and many other diseases, he hints that by producing some mysterious change in the constitution it may lead to all kinds of mischief. He had evidently not studied the matter seriously, or his study had been singularly fruitless. In any case the fact that he should have written such nonsense on a subject as to which easily verifiable facts lay close to his hand scarcely encourages us *jurare in verba magistri* when he is dealing with more recondite things. The medical profession itself he looked upon with jealousy, if not dislike, as a close corporation, still retaining much of its primitive priestly and occult character. But with all his prejudices and limitations he was a man who, according to any right estimate of values, was the chiefest glory of his country. To our shame be it said, the vast majority of his countrymen knew little and cared nothing about the great philosopher. On the day the announcement of his death appeared on the bills of the newspapers, a porter at Charing Cross Station was heard to ask his mate "Who 's this 'ere Spencer wot 's dead?" The answer was "Why 'e's the man wot 'ad the balloon at the Crystal Palace!" The London correspondent of *Le Journal des Débats* relates that he was not long ago in company with some Englishmen and foreigners. The conversation turned on great men, and one of the Englishmen bewailed the fact that his country at the present time had none. One of the foreigners pointed out that she had at least two—a great philosopher and a benefactor of mankind who could stand comparison with Pasteur. The Englishman, evidently much surprised, asked who they were; and he did not seem to be greatly enlightened when he was informed that they were Herbert Spencer and Lister. I remember when Lord Lister was made a peer of the realm, hearing that one of the so-called leaders of Society, *une grande dame de par le monde*, as Brantôme would have called her, on seeing the announcement in the list of honors, asked who on earth the man was, and what he had done to entitle him to such a distinction! In this enlightened country, unless a man is a politician, an athlete or an actor, he need not expect that his name will be familiar in men's mouths as a household word. W. G. Grace, the cricketer—himself, by the way, a member of the medical profession—is far more famous than any man of science or letters in the kingdom.

An appeal has just been issued by the Senate of the University of London for funds to build and endow an Institute of Medical Sciences under the control of the University. Among the signatories are Lord Rosebery, the Chancellor of the University, Dr. Pye-Smith, Consulting Physician to Guy's Hospital, Vice-Chancellor, and Mr. H. T. Butlin, formerly surgeon to St. Bartholomew's Hospital, Dean of the Faculty of Medicine. The function of the Institute is to be the teaching of physics, chemistry, biology, anatomy and physiology—in a word, it is proposed to centralize the teaching of the sciences that form the foundations of scientific medicine. At present these subjects are taught in each of the eleven schools attached to metropolitan hospitals—a system that obviously makes for inefficiency. The necessity of concentrating the teaching of the subjects mentioned in one or two large institutions was strongly urged by Huxley more than thirty years ago, but the rivalries of the schools have up to the present time prevented the accomplishment of the reform. Now several of the hospital schools are on the verge of bankruptcy owing to the expenditure required for laboratories, apparatus and practical teaching. In order to keep them going subventions have to be made from the hospital funds. This gives an opening for attacks by the antivivisectionists who call on the public, not to subscribe to hospitals whose funds are used for the "torture" of animals. It is to be hoped that the money will be obtained, but I fear it will be difficult to persuade the British public to contribute toward the cost of medical education. It would be useless to ask help from the Government, which has the fear of the voter ever before its eyes.

Reference was made in my last letter to a remarkable

paper on the structure of the cells in Malignant Growths, which was read before the Royal Society last week by Professor Farmer, Mr. Moore and Mr. C. E. Walker, all of the Royal College of Science. Owing to the stringent rules of the Royal Society as to publication, it was impossible then to obtain even the briefest outline of the paper. The following abstract, made by one of the authors and revised by the others has since appeared in *The Times* (December 14) a paper which is privileged to be chosen by the officials of the Royal Society as the medium of publication of the communications which they consider to be specially important. As the paper has not been published elsewhere, the following summary of the work of Farmer, Moore and Walker may be interesting. Their investigations, it is claimed, have revealed a striking resemblance between the formation of sexual reproductive tissue and that of those abnormal growths in the higher animals which possess the property of invading and destroying the surrounding tissues of the body. These growths or tumors are, when occurring in man, known as "malignant," and include carcinomata (cancer) and sarcomata. The authors have rejected the hypotheses as to a parasitic origin of the disease, and also the views advocated by Cohnheim, according to which the growths are due to awakening activity in nests of "embryonic tissue" abnormally persisting in the organism after the embryonic stages have been passed. The changes which occur in cells that are about to produce reproductive or germ cells are highly characteristic, differing very materially from the changes observed in cells which are producing, or destined to produce, the ordinary tissues of the body. These differences are specially noticeable in the mode in which the nuclei of the cells divide, its nucleus passes through a series of changes, of which one of the most remarkable is the appearance of a number of rod-like bodies known as chromosomes. The number of these chromosomes is constant in each species of animal and plant, and does not vary during subsequent divisions so long as only ordinary body tissue is produced. In reproductive (not "embryonic") tissues, however, the cells, at a certain stage, undergo a special and very characteristic form of division, in which the chromosomes present a different appearance, and reappear in only half the number proper to the species to which the particular organism belongs. The descendants of these cells retain the reduced number of chromosomes in subsequent divisions until they finally produce those germ cells to which they normally give rise. When two of these germ cells fuse, the resulting cell (fertilized egg) again gives rise to a new individual, the cells of which possess the normal number of chromosomes. The authors have identified, near the growing edges of malignant growths, cells which are quite similar to those occurring normally in reproductive tissue, and they regard the conversion of previously normal cells into tissue which has assumed the essential features of reproductive or germinal tissue as being the immediate cause of the malignancy of the new growth. It is to be particularly remarked that the authors describe the tissue as being germinal and not embryonic, for in the latter the nuclei do not possess a reduced number of chromosomes. Cells which thus originate (as germ cells) exhibit in the normal life history of an organism that independence of growth and parasitic mode of nutrition that distinguishes malignant growths. The changes indicated have not been observed by the authors in benign tumors or ordinary inflammatory tissues; hence it would seem that they may be used as diagnostic signs, differentiating malignant from benign tumors. Naturally, in the case of tissues thus produced, the further history of the cells continues along abnormal lines, partly, no doubt, because of nutritional derangement. The causes that produce a germinal tissue from the normal cells of the body must doubtless be sought among physiological stimuli. Some of these are known to derange normal functions and to produce changes of form and structure. The authors believe that they are on the track of a method of what may be called physiological treatment that will prevent the development of malignant growths.

Marmorek's antituberculous serum, which has failed to find favor with the French Academy of Medicine, is being tried in St. George's and the Brompton Consumption Hospitals, by Dr. Arthur Latham, winner of the first prize offered by the Advisory Committee of the King's Sanatorium, for the best essay on the construction of sanatoria. He is to have the benefit of the personal advice of Dr. Marmorek who intends to visit London once a month to supervise the treatment. Dr. Marmorek was till lately on the staff of the Pasteur Institute, but the way in which he brought his serum to the notice of the public led to a protest on the part of his colleagues, and finally to his resignation. His serum has been tried by various well-known physicians and surgeons in Paris, with unsatisfactory results. Dr. Latham's report will be awaited with no very eager expectancy. It may be mentioned that his relative, Professor Latham, of Cambridge, two or three years ago undertook to investigate the effects of *Lachnanthes*, which is said to be the basis of a quack remedy largely advertised in this country. A preliminary report to the effect that no particular result had been observed was published some time ago. As far as I am aware no further report has yet appeared, and it is by no means unlikely that nothing more will be heard of the matter. At the Middlesex Hospital several cases of cancer are under treatment with a serum prepared by Dr. Otto Schmidt, of Cologne, with which he says he has completely cured some fifty cases. Of these at least three are known to have ended in death, and *post-mortem* examination proved that the cancer was not cured. The cases in the Middlesex Hospital were selected with the approval of Schmidt himself, but although they have been under treatment for more than a fortnight no appreciable effect has been produced.

Dr. Rutherford Harris, the first Secretary of the British South Africa Company, who has just been elected Member of Parliament for Dulwich, began life as a medical practitioner. He went to South Africa in search of health and there made the acquaintance of Cecil Rhodes who had a marked liking for doctors. Dr. Harris was for several years closely associated with Rhodes in his financial and political schemes. He will not count for much as a representative of medicine in the House of Commons, but the number of doctors in Parliament is so small that every addition to their ranks is welcome. The pity of it is that, few as they are, they cannot be got to act together in regard to legislation affecting the medical profession. An attempt has recently been made by the British Medical Association to induce them to form themselves into a Medical and Public Health Committee of the House of Commons. This might be a good thing in itself, but it is unlikely that the medical Members of Parliament will consent to act as delegates of the British Medical Association. It has been suggested that the Association should find doctors prepared to come forward as candidates for Parliament, should pay their election expenses and should provide an income for them while they sit in the House. It would be the business of these representatives to "assert the wants of the profession, in season and out of season." The Association might not have much difficulty in finding candidates, but it would not be so easy to find them

constituencies. As a political force, the medical profession in this country is a negligible quantity. This is perhaps not altogether to be regretted in view of the fatuous suggestion to which reference has been made. It is certain that if by any chance the British Medical Association were to succeed in getting a number of medical men who would be virtually its delegates returned to Parliament, they would speedily come to be regarded as intolerable bores. They would thus do the cause which they represented the worst possible service, for the House of Commons hates nothing so much as a bore.

SOCIETY PROCEEDINGS.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, December 1, 1903.

The President, Wm. Egbert Robertson M.D., in the Chair.

Observations on the Occurrence of Nephritis in Infancy.—This was the paper read by Dr. Charles C. Baedert, in which he reviewed the work of Goulkewitch, who, in a post-mortem study of the kidneys of 200 infants, found nephritis in 23, the primary disease being pneumonia in 11, tuberculosis in 6, and enteritis in 6; Morse, who recommended the routine examination of infants' urine; Jacobi, who divided the disease in infancy into the acute, subacute and chronic forms, and considered the cause as either congestive or obstructive; Holt, and D. J. Milton Miller, who has devoted particular attention to the study of the influenzal nephritis. He recommended that the urine be examined for albumin in all doubtful cases, as many of the fatal cases of uremia are frequently unaccompanied by edema or dropsy. Among the causes of uremia were mentioned, scarlatina, diphtheria, measles, rubella, varicella, vaccinia, malaria, typhoid cerebrospinal fevers, tonsillitis, parotitis and pyemia, whooping cough, bronchopneumonia and the stasis dependent upon other pulmonary and cardiac affections. The primary form is very rare in infants. While albumin and hyaline casts are frequently present in the urine of infants, yet after the first week they should be given the same significance as in later life. He reported four cases, all following pneumonia, which, in two cases, was a sequel of whooping cough, in one it was a sequel of influenza and in the other a sequel of acute gastro-enteritis. The first cases occurred in a child aged five months; at the beginning of the attack, there was a temperature of 103° F.; pulse 125, and some vomiting and diarrhea, from which it recovered to a great extent in three or four days, but had a cough. Twelve days after the beginning of the first attack he was again seized with fever, temperature 104° F., cough and diarrhea and on the following day had two slight convulsions. Nine days later the physical signs of bronchopneumonia appeared, with a temperature of 104.4° F.; respirations 80, and a distinct swelling and puffiness of both feet. After this the temperature and pulse continued high, and the urine showed albumin and hyaline and granular casts and pus, the child dying on the thirtieth day, after the beginning of the first attack, after having had several hard convulsions, probably uremic. The second case was a male, four months old, and was first seen in the second week of the convulsive stage of whooping cough, with a temperature of 103.2° F.; pulse 130, and respirations 50. During the course of the disease, he had been crying and fretting with spasmodic coughing, followed by vomiting. After four days he developed symptoms of bronchopneumonia, and the urine was scanty, but showed only a slight trace of albumin and no casts. He apparently improved and had a subnormal temperature for ten or twelve days, when a relapse occurred, with a temperature of 103.2°, with a return of the symptoms of bronchopneumonia, with albuminuria and numerous hyaline and granular casts and pus cells. The patient was markedly anemic and continued to grow worse until the fifty-third day of the disease, when he died. The third case was a female infant, seven months old, who was first seen with a temperature of 104° F., and a pulse of 150, and marked catarrhal symptoms indicating influenza, with moist râles, but no consolidation. Four days later bronchial breathing developed and patient continued in about same state for about a week more, when the bronchopneumonia symptoms still persisted, the patient was very pale, passed very little urine and a week later, albuminuria was present, but no distinct casts; convulsions developed in the meantime and the patient died four days later, on the twenty-fifth day of her illness. The autopsy showed areas of consolidation in both lungs posteriorly, congested spleen, enlarged and congested liver and red and congested kidneys. The fourth case was a male infant, aged four months, the illness beginning with high fever, diarrhea and vomiting, followed by extreme weakness and emaciation, and then improvement for a few days, after which he was taken with a high fever and cough, with albuminuria, pus and granular casts, followed by convulsions and death. In conclusion the author emphasized the importance of (1) the examination of the urine in all acute diseases of infancy and especially in the bronchopneumonia; (2) the importance of marked anemia as the most pronounced symptoms of kidney involvement; (3) that edema when present is a valuable symptom, but grave kidney involvement may exist without it; (4) there is almost always a diminution in the renal secretion; (5) the presence of grave nervous phenomena and convulsions.

Importance of Dropsy as a Symptom.—This was the title of the paper read by Dr. A. C. Morgan, in which he divided the condition into the unilateral, in which the cause exists in the immediate proximity; bilateral, which may be caused by obstruction of a corresponding point of the two sides affected; and the bilateral edema in which there is a central cause. The local variety is caused by pressure on the capillaries, veins or lymph spaces, and may be either acute, as from an abscess, in which it is caused by arterial dilatation; or chronic, as from lymphangitis, after operations or fractures of the bones. An important point is the association of edema of the ankles with anemia, accompanied by a slight irregular fever, oftentimes closely simulating the fever of incipient phthisis. The malleolar dropsy in anemia is chiefly due to the decrease in the solid contents of the blood caused by the primary disease, such as Bright's disease, pernicious anemia, intestinal toxemia, chronic dysentery, scurvy or cachexia. In a transudate, the skin is cold, symmetrically swollen, pale, shiny and smooth, pitting on pressure, and slowly resuming its former shape. In an exudate the skin is hot, non-symmetrical, red, pitting on pressure, constantly painful—throbbing in character, the exudate being constantly mixed with blood and breaks only when the abscess points. Edema of the skin in contradistinction to a bulging indicates that the fluid contents are septic. He stated that dropsy should always be considered as a pathological condition, requiring for its cure proper medical or surgical attention, and should be given full importance in both, diagnosis, prognosis and treatment. He stated that, as a general rule, initial dropsy of Bright's disease appears as edema under the lower eyelids, seen upon arising in the morning, disappearing by night; in valvular heart disease,

myocarditis, lung or blood conditions, its first appearance is in the ankles, appearing late in the day and increasing toward night; and hydroperitoneum or ascites is the first dropsy due to failure of compensation in the portal circulation, as in cirrhosis of the liver.

Non-Medicinal Treatment of Dropsy.—This was read by Dr. Albert G. Miller, in which he stated that there were frequently cases of edema due to cardiac or renal causes, which baffled the practitioner, if he relied upon drugs alone. Hygienic and dietetic measures should be resorted to, mental excitement avoided, as this will tend to functional cardiac derangement. The diet should be simple and the quantity limited; foods tending to produce gaseous distention or fermentation should be avoided, and if of nephritic origin the proteids should be reduced to a minimum. Water may be more limited in the cardiac than in the renal cases. The clothing should be carefully regulated, woolen undergarments being preferable throughout the year. Climatic surroundings should be carefully considered, prolonged residence in a warm, dry climate being often beneficial to the nephritic cases. Careful attention should be given to bathing—hot baths being favorable in renal, but not in cardiac cases; muscular strain and fatigue should be avoided and in severe cases, cessation of labor is desirable. Carefully regulated exercise and elevation of the part are also of value, and where there is no inflammation of the affected part, massage and electricity are of value. In some cases the use of kaolin spread thickly on the parts; and in nephritic cases, particularly if there be urinary suppression, the use of dry cups is of value. In severe cases, the employment of Southey's tubes; and in some cases accompanied by extreme cyanosis, bleeding to relieve the intracardial pressure, may be resorted to, either directly by opening a vein or by means of leeches and wet cups. In cases of transudation into the serous cavities paracentesis may be necessary.

Dr. Harry Lowenburg, in the discussion, emphasized the importance of the examination of the urine of infants as a routine measure, particularly those suffering from the infectious fevers, more especially scarlet fever, which he believed could be classified into the postscarlatinal and the septic nephritis. He believed that in nearly all cases of scarlet fever albuminuria was present at some period of the condition, and that if the skin is kept active by baths and alkaline, and fruit juices are given the patients to drink, the danger from nephritis will be reduced to a minimum. He reported the case of a colored boy whose only symptoms manifesting themselves were watering of the eyes and sneezing, the case having been diagnosed as one of hay fever. Urinary examination was suggested by slight puffiness under the eye, and there was also cardiac hypertrophy, displacement of the apex beat, and thickened arteries.

Dr. Hugh Hanna remarked the importance of early diagnosis and treatment of the nephritic condition, and reported the case of a mild scarlatinous condition, which was improving very nicely, when the patient, in the absence of the nurse, went to the window and from the effects of the cold air immediately developed nephritis, with almost complete suppression of urine for nearly forty-eight hours. By the use of actively eliminative preparations and large amounts of water the patient made a good recovery.

Dr. Luther C. Peter suggested the practicability of the employment of Fuller's earth or chalk with glycerin and some of the volatile oils.

Dr. H. C. Masland believed that the condition of the kidneys should be carefully watched throughout the course of all infectious diseases, and careful attention to any symptom arising he believed would oftentimes prevent permanent impairment or fatal results.

Dr. I. Valentine Levi reported three cases of scarlet fever in which examinations of the urine were made every other day, and no albumin was discovered, although casts were present in one, which he felt indicated the necessity of centrifugation and microscopical examination in all cases.

Dr. Arthur P. Hitchens reported that staphylococcus could be recovered from the kidneys of rabbits after five or six days, even although not strong enough to produce death, and the germs are more numerous in the kidneys than in any part of the body. With streptococcus, the reverse is true; they are practically never found in the kidneys unless the rabbit dies, and even then are much less numerous than in other parts of the bodies.

Dr. J. Thompson Schell stated that he had great difficulty in collecting the urine of infants for examination. He believed that infantile nephritis was a very frequent condition, and also that children were oftentimes born with a form of nephritis. He also felt that many cases of young infants were treated for ordinary colic when it was really of nephritic origin.

Dr. William L. Pepper reported a case of nephritic dropsy, which terminated favorably, in which the albuminuria was not increased by giving the patient a large amount of eggs.

Dr. Wm. Egbert Robertson felt that in many cases the term nephritic was a misnomer, as probably a majority of the cases of so-called nephritis, particularly all those accompanying infectious diseases, were cases of toxic degeneration. He thought that the urine from a male baby comparatively easy of collection by the use of a small bag such as is sometimes worn by adults in cases of urinary incontinence. He stated that the youngest case of this condition he had ever seen occurred in a male infant six weeks old, following an enteritis. There was anemia, but no edema, albumin, leucin and tyrosin were present in the urine. Autopsy revealed a septic infarct in the lung, from which area and the heart blood streptococcus was recovered. He divided the condition into the infectious and the metabolic, which may be due to altered metabolism, which may be due to external agencies, such as lead and other metallic poisons or to syphilis, gout and possibly rheumatism. He recommended careful examination of the urine, both for albumin and microscopically for casts in all cases of infectious diseases. Dropsy due to renal conditions, he stated, did not terminate fatally nearly so quickly as that due to cardiac disturbance, and as in renal conditions, there is usually an associated heart lesion, he felt there was a possibility of increasing the cardiac hypertrophy by the too free administration of water in the renal cases.

Dr. Ellis E. W. Given stated that at the Children's Hospital a wide-mouthed bottle was employed for the collection of urine from the male infants, and the child kept as quiet as possible, but that for female infants, the only means that could be employed was a catheter (which it was very difficult to obtain small enough), or absorbent cotton.

Dr. A. C. Morgan, in closing, stated the best method of collecting the urine was to excite urination by putting a grain or two of salt upon the lips of the meatus, or if the child is old enough, to be responsive to stimuli, running water excites urination, and then you can collect the urine in a vessel. He further stated that he had seen one case of edema of the chest wall, occurring in a woman at Blockley, the process having been present for over a year.

Dr. A. G. Miller, in closing, stated that the effect of the kaolin is due entirely to the abstraction of fluid or some toxic principle, and the remedy requires great nicety of preparation, as if too much glycerin is used,

it will not stay on well, and if too much clay is employed, it will be too hard to produce any effect.

Dr. Charles C. Biedert, in closing, stated that he saw no objection to the employment of the catheter in female infants, having used it with no untoward results. In none of the cases reported was the albumin sufficient to estimate quantitatively, and in all hyaline and granular casts and some kidney cells were present.

BOOK REVIEWS.

The Medical Record Visiting List or Physician's Diary for 1904. New revised edition. William Wood & Co, New York.

This new edition has been revised and improved in many ways. The amount of matter bearing upon emergencies of all kinds has been increased and questions of dosage and the like, particularly of some of the older drugs, have been eliminated. A welcome addition is the introduction of both the English and French systems. The hints on the writing of wills by a member of the New York bar may save many practitioners from unwelcome legal complications. The List is attractively bound in black leather and is in every way highly creditable to the house which furnishes it.

Social Diseases and Marriage—Social Prophylaxis. By Prince A. Morrow, A.M., M.D. Lea Brothers & Co., New York and Philadelphia.

Ample justification for the appearance of this work is furnished by the author in the preface, wherein he states: "There is no comprehensive treatise in our language upon this subject."

A portion of the field had been already covered by Dr. Morrow's translation of Fournier's classical monograph upon Syphilis and Marriage, yet an equally important portion has never taken definite shape in a formal treatise—namely, the relation that gonorrhea holds to matrimony, a field fully covered by the present volume.

Dr. Morrow clothes his ideas in language that flows gracefully from a willing pen; words that, at times, become crystallized into a form akin to epigram—"The present of syphilis is never the mirror of the future"—and make very agreeable reading.

This ease of diction gives the book almost a popular character.

Its line of argument could be as easily followed by the layman as by the physician, and the facts presented would be a potent incentive to a correct course of life if laid, even in their present form, before any self-respecting young man.

Moreover, the whole tone of the book is stamped with honesty. It becomes sometimes almost an appeal, glowing with the warmth of personal conviction fortified by knowledge.

The four pages upon the Causes of Prostitution (320 *et seq.*) are peculiarly forceful and bristle with suggestion.

The word-painting, always vivid, is at times impressionistic, never lurid, never gruesome.

Chapter XXX is rather a dramatic presentation of the dangers introduced by syphilis into marriage, but for that reason the more graphic.

To Gonorrhea is given about one-quarter of the text; and its relation to marriage is followed up through the possible sterility it may impose upon both sexes through the distortions of gonorrheal rheumatism, the ophthalmia neonatorum and vulvovaginitis of the young, the possible blindness at any time of life, to the final tubal, peritoneal and septic complications of the innocent victim.

Syphilis, in like manner, is carried through its relations to the individual into the parasyphilitic and late dystrophial terminations.

The medical secret is discussed in a spirit of cautious protest, and, in the way of prophylaxis, a broader education of the young is advocated as the most potent factor.

Excellent chapter heads and a full index facilitate reference. E. L. Keyes.

The Practical Application of the Roentgen Rays in Therapeutics and Diagnosis. By Wm. A. Pusey, A.M., M.D., Professor of Dermatology in the University of Illinois; Member of the American Dermatological Association; and Eugene W. Caldwell, B.S., Director of the Edward N. Gibbs X-Ray Laboratory, University and Bellevue Hospital Medical College, New York; Member of the Roentgen Society of London. W. B. Saunders & Co., New York, Philadelphia and London.

Somewhat more than a third of the present volume is devoted to a discussion of the apparatus used in X-ray work and the various technical methods involved in its application to diagnosis and treatment. The second larger part of the book is the work of the senior author, and summarizes the present status of our knowledge in regard to the therapeutics of this new agent, together with a report of cases from his own experience.

With such a variety of types of apparatus on the market it is of the greatest value to anyone contemplating an excursion into this fascinating realm of clinical physics to have their underlying principles, and consequently, fields of usefulness so clearly indicated as in the first part of this book. Each element in the make-up of the X-ray outfit is described and the fitness of the different varieties of each for special purposes pointed out. Directions as explicit as is possible in an art which, like all arts, is mainly dominated by rule of thumb precepts, are given and many ingenious and effective devices, the product of the author's experience, described. Among these are special types of tubes for use in making therapeutic applications of the rays to various cavities of the body, apparatus for localizing foreign bodies and for making stereoscopic radiographs, a special electrolytic interrupter, a clever system of filing negatives, a dark lantern, a screen for viewing negatives, etc.

The second part contains chapters on the effects of the Roentgen ray in healthy and diseased tissues, the philosophy of its remedial action in certain diseases, the technic of its application and very numerous case histories. The value of X-ray therapy in hypertrichosis, acne and sycosis is said to be above question. In triea tonsurans and favus its use is less well established, but is worthy of persistent trial, while in certain forms of eczema, lichen planus and psoriasis it has a distinct field of usefulness. Lupus erythematosus is yet unconquered, but lupus vulgaris has succumbed to the new treatment. In regard to malignant disease the author takes the optimistic ground usual to dermatologists and ascribes most brilliant results to the method. Cases in which it is particularly useful are inoperable cases, those where much tissue cannot be sacrificed, and as a temporary measure to prevent spread of the disease in cases where operation cannot immediately be performed. This section is most valuable and interesting, though its attractiveness is marred by the author's careless literary form.

A number of excellent plates and many illustrations in the text, together with beautiful presswork, contribute much to the interest of the volume.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

INTERSCAPULOTHORACIC AMPUTATION FOR SARCOMA.

BY CHARLES A. POWERS, M.D.,
OF DENVER, COL.:
SURGEON TO ST. LUKE'S HOSPITAL AND TO THE DENVER CITY HOSPITAL.

THE patient, Mr. H., a man of fifty-six years, is without alcoholic history; he has always been in fairly good general health. In September, 1902, he fractured the upper part of the left humerus, being treated by a competent physician with an excellent result. In December, 1902, he noticed a small lump at about the seat of fracture anteriorly. This gave him no special trouble at the time, but in February, 1893, it began to grow and a few weeks afterward he consulted Dr. S. B. Childs who made a diagnosis of sarcoma. A small piece of the growth was removed, examined microscopically, pronounced sarcoma and amputation at shoulder-joint advised. This, however, the man refused and demanded X-ray treatment, which was given by Dr. Childs until the latter part of May, the growth tending to increase. Through the courtesy of Dr. Childs I saw him about April 25. At that time there was a diffuse, semi-fluctuating growth at the upper part of the arm, chiefly in front. This was somewhat larger than a fist and seemed to be attached to the bone. Amputation again advised and refused. I next saw him May 29; the growth was much larger; it was more fusiform, extending well on the chest anteriorly and occupying the entire outer and anterior deltoid region. It seemed to be attached to the humerus but the whole mass was movable on the chest wall.

The tumor was growing, the pain was getting to be pretty severe. In spite of the fact that the urine showed a large amount of albumin (3 per cent.), I was inclined to recommend an interscapulothoracic amputation as a palliative measure and the patient requested this after its dangers had been fully set before him. Four days were devoted to improving the general condition.

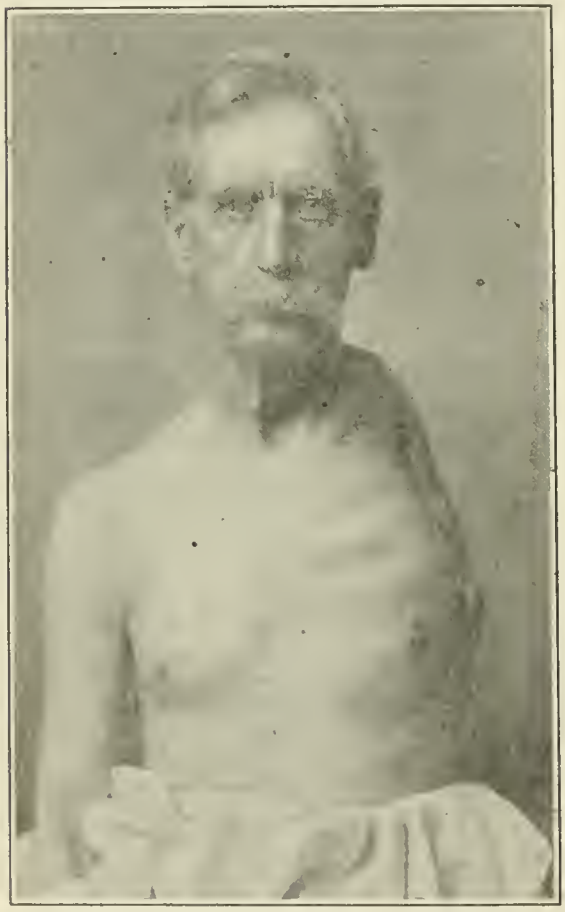
Operation.—St. Luke's Hospital, 11:30 A.M., June 3, 1903. Chloroform carefully administered by Dr. Olmstead. The middle half of the collar-bone was easily resected, the inner division being made by a wire saw, the outer division by a heavy bone forceps. The pectoralis major was divided downward about the middle of the incision giving easy access to the large vessels. Two arteries of medium size running parallel with the collar-bone were divided and tied. Directly beneath the collar-bone and with no appreciable fibers of the subclavius muscle intervening was a medium-sized vein running transversely. This was not very large and from its superficial position I at the time judged it a transverse cervical vein. It was divided between two ligatures. It proved to be the subclavian vein for directly behind it the subclavian artery was easily recognized, brought up from its sheath and ligated with heavy silk. Two ligatures a quarter of an inch apart were placed on the proximal side, one ligature on the distal side and the artery divided one-fourth inch outside of the external proximal ligature. An anterior flap was then rapidly fashioned, cutting well outside of the growth. This necessitated incision pretty well forward and inward on the chest wall. A few veins had to be caught; but little blood was lost. Abduction of the limb then put the cords of the brachial plexus on the stretch. Each cord was injected with ten minims of a one-fourth of one per cent. solution of cocaine and at the end of two minutes the cords were divided. The pulse was noted at the time of division of the cords; it did not change. As the growth was lodged in chief part anterior and external to the shoulder an unusually large posterior flap was fashioned, this connecting with the anterior flap just below the axilla. A transverse posterior cut was made just below the spine of the scapula nearly to its posterior border and the soft parts dissected up from the scapula above and below the spine. The scapula was then easily removed and the limb severed. The posterior incisions were nearly bloodless; no artery and but few veins required ligation. The flaps were brought together with moderate tension at the middle of the wound. Gauze drainage at the lower angle. Copious dressings evenly and firmly applied. Time of operation fifty-seven minutes. The patient was in fairly good condition at the close, the pulse being 130. The pulse before operation was 80, during ligation of the subclavian vessels it was 50. The patient rallied well; twenty-four hours later the pulse was 96; he had suffered but little and was very comfortable. At this time urine was being secreted freely, its specific gravity was 1.024 and it showed but a slight amount of albumin.

The gauze drain was taken out at the end of twenty-four hours. The stitches were removed on the seventh day. The wound healed throughout by first intention. The patient had at no time enough pain to require an opiate. He was out of bed on the tenth day. After operation he had X-ray treatment. The accompanying pictures show the condition at the end of two and one-half weeks. He has never complained of a feeling of lopsidedness.

During his stay in the hospital the albumin practically disappeared from the urine. No casts were found at any time. At this time, four months after operation, there is no evidence of

relapse but as histological examination of the growth showed it to be a round-celled sarcoma there is pretty sure to be a return.* The patient weighs eight pounds more now than he did before the limb was removed. Dr. J. A. Wilder, pathologist to the hospital, reports as follows on the specimen: "The external appearance of the tumor of shoulder presented for examination is that of a large, rounded, smooth mass, occupying the entire deltoid region and being 16½ inches in circumference. On section this is light flesh colored, lobulated and very friable. It is firmly

Fig. 1.



Interscapulothoracic amputation for sarcoma. Condition at end of two weeks.

attached to the sheaths of muscles and tendons in this locality and more firmly attached to and apparently springing from the periosteum at the point of a fracture of the surgical neck of the humerus. The growth appears to be partially encapsulated in places but has infiltrated in all directions. The growth macroscopically was well included within the lines of incision.

Pieces were taken from different parts of the tumor for examination, hardened in alcohol and imbedded in celloidin. Sections taken from different places stained with hematoxylin have the same general appearance: namely, a dense mass of small, round cells having large, deeply stained nuclei. A few trabeculæ of edematous connecting tissue are seen scattered through the sections. Blood vessels are present in moderate number and invariably have very poorly developed walls, many of them apparently having nothing but the endothelial lining. Diagnosis; small, round-cell sarcoma."

The question of pathological fracture following sarcoma is an interesting one. In January, 1890, I presented* a specimen of angiosarcoma of the shoulder-joint with fracture through the surgical neck of the humerus at a meeting of the Section on Surgery of the New York Academy of Medicine. This patient had fallen on the shoulder ten weeks before operation, there having been no indication of shoulder trouble previous to the injury. I saw him two weeks after he was hurt and at that time made a diagnosis of fracture, as above noted. There was considerable swelling of the shoulder-joint which became even greater after the application of a plaster-of-Paris splint. Four or five weeks later, the swelling continuing, he was sent from the out-patient department of the hospital into the hospital proper for ward treatment. The condition progressing, amputation was made at the shoulder-joint, the pathologist reporting typical angiosarcoma.

In this case my first thought was that the fracture occurred at the time of the fall and that the sarcoma was occasioned by and followed the fracture. Dr. Weir and Dr. Jacobi, however, believed in the reverse order and attributed the fracture to softening of the bone by the neoplasm. I am convinced that they were right. In the case which I am now reporting, I believe an original fracture to have united, a sarcoma to have developed and a pathological fracture to have followed. I did not know of the last fracture until examination was made of the specimen. It is possible that it took place while the arm was being manipulated during amputation.

This was my first experience with this operation and I beg to acknowledge my indebtedness to recent articles by LeConte† and Lund‡ for valuable assistance. The patient was thin and therefore ligation of the subclavian vessels was comparatively easy, but the operation itself was a little more difficult than usual because of the anterior location of the growth. Resection of the collar-bone was rapidly and easily carried out. Downward division of the pectoralis major as suggested by Lund was of marked help. I was not prepared to find the subclavian vein so closely in contact with the collar-bone. There was practically no subclavius muscle and the vein was so moderate in size that I tied it, in the thought that it was something anterior to the large vessels. In this operation one should ligate

* January 10, 1904. On correcting the proof of this MS. I receive report of the recent death of this patient from metastatic sarcoma of the hip.—C. A. P.

* New York Medical Record, Vol. xxxviii, p. 199.
† Annals of Surgery, Vol. xxx, p. 260 and Vol. xxxvi, p. 573
‡ Boston Medical Surgicaland Journal, Vol. cxlviii, p. 409.

the artery first, elevating the limb to allow the blood in it to get back into the body, and then tie the vein. In another case I should be more careful to do this; in this instance, however, the fact that the vein was first ligated does not seem to have prejudiced the result. After ligation of the subclavian vessels the operation was practically bloodless and was very easy.

The operation is one requiring good light, suitable position of the patient and proper hospital organization. The best position is at the edge of a flat table with a small sandbag between the shoulders.

Fig. 2.

Interscapulothoracic amputation for sarcoma. Condition at end of two weeks.

Tinker* attributes the first operation of this nature to Dixi Crosby, of Hanover, N. H., in 1836. The subject has recently been studied with much care by LeConte (*loc. supra cit.*). The key to the procedure lies (Berger) in primary ligation of the subclavian artery and vein. For the rapid and easy carrying out of this I judge such resection of the collar-bone as was made in my case to be fairly suitable. When the collar-bone itself is involved in the new growth disarticulation of its sternal end with reflection outward of the entire bone must be done as advised by LeConte; it may be that this procedure will prove to be the easier and more rapid in all cases. After removal of the collar-bone, division downward of the upper part of the pectoralis major with section of the pectoralis minor as advised by Lund will be found of marked benefit. Unless the patient be pretty fat and the wound deep, access to the subclavian vessels will then be fairly easy; there may, however, be very large veins in front of these vessels and LeConte shows that various operators have experienced considerable difficulty not only with venous hemorrhage but in recognizing the vessels themselves or in gaining access to the artery. An experience of but one case does not warrant an opinion, but it seems to me that in a difficult case I would rather tie and divide all veins as rapidly as possible down to the artery than consume a great deal of time and risk injury to the veins in an endeavor to get the artery first. In such cases LeConte advises primary ligation of the axillary artery, working back from this point to the third part of the subclavian. If one wounds a good-sized vein in this region he is bound to have some difficulty in securing it and his patient is pretty sure to lose a fair amount of blood.

After ligation of the vessels the operation is easy and can be completed rapidly. The flaps will be fashioned according to the location of good tissue. The researches of Crile seem to show that cocainization of large nerve trunks should be made before their division. Lund lays stress on this. It takes but little time and seems worth doing. In the case here reported the pulse showed no change when the cords of the brachial plexus were divided.

Berger,* who with Farabeuf developed the modern technic thinks the operation attended with but moderate risk unless malignant disease involves the scapula. In these cases a large amount of tissue overlying the shoulder blade must be removed, the resulting wound is difficult to close and the mortality goes fairly high. Barling, quoted by Jacobson and Steward,† also thinks the mortality low. Of 19 cases, recorded since 1890 and collected by him, all recovered.

* The Johns Hopkins Hospital Bulletin, Aug.-Sept., 1902.

PREVENTION OF THE SPREAD OF RINGWORM.

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WRITERS from the time of Celsus to the present day have endeavored to improve the nomenclature of the mycotic group. It has long been undisputed that the various lesions described under the title of ringworm are due to the presence of a vegetable parasite in the epidermis, hair follicles, hair or nails. Up to the present decade the fungi found in the various forms of ringworm were believed to be identical. More than

* Semaine Médicale, 1903.
† Operations of Surgery, Vol. i, p. 182.

fifty years ago Gruby indicated a division of the fungi causing ringworm. But his wonderful discoveries were not only not appreciated, but unrecognized, and the *Tricophyton* was accepted by most physicians as the sole factor in all ringworm cases.

Sabaraud, with the advantage of more modern training and inexhaustible patience, brought this subject to a higher plane both clinically and pathologically and established beyond question, the division of ringworm into two classes—the *Microsporon Audouini*, or small spore fungus, and the *Tricophyton*, or large spore fungus, the latter being again subdivided. He frankly admits his work to be simply an elaboration of Gruby's discoveries.

Encouraged by the brilliant results of Sabaraud and stimulated by the necessity for conquering this ever-increasing disease, hundreds of workers have begun the investigation of this subject and have made valuable additions to our knowledge of ringworm fungi.

In this paper the writer desires to point out, as briefly as possible, some of the mediums of transmission. Among these may be mentioned some of the lower animals, as the dog, cat, bird, horse, cow, mouse and sheep and many others. That domestic animals and pets are great transmitters of this disease is proven by the fact that fungi derived from animal sources, though of different species, show a greater vitality than those derived from human sources. Experience proves that the nearer a fungus is to its animal origin the more rapid its growth; also that it loses its vitality by human transmission.

Recently the writer had presented a case of body ringworm. In the house of the patient was found a mangy cat. Microscopical examination disclosed the presence of the same fungus—the *Ectothrix*—in the lesion of both the patient and the cat, thus confirming the suspicion that the disease had been contracted from the cat. Animals, however, cannot be held entirely responsible for the transmission of this disease when we consider the excellent opportunities for diffusion offered by barber shops, bath houses, asylums, day nurseries, and, last but not least, our public schools. That barber shops and hairdressing establishments play an important part in the transmission of these diseases is not to be wondered at when we remember the usual unsanitary condition of these shops of infection.

The disease is not, as is popularly supposed, conveyed by the razor, but by the barber's hands or towels and oftenest by the lathering brush Not only is the adult exposed here, but frequently the innocent child who has his hair cut brings away as a souvenir of the occasion a fine case of scalp ringworm. And now for its widest field of action. In our schools, side by side, are seated children from all kinds and conditions of homes. We are not surprised at the increase of this disease when we consider the facility of transmission of fungus either directly from child to child (through the medium of some contaminated article) and sometimes even by means of the air alone, when there are many affected children congregated. It flourishes more readily in badly nourished or uncleanly children, yet I have met extremely obstinate forms in otherwise healthy children. The gregarious habits of children, the frequent and intimate character of contact in their amusements and studies, and their indiscriminate use of hats, caps, etc., greatly increase the chances of contagion when one of their number is affected with this condition.

Our public schools require certificates of vaccination or of recovery after the acute infectious diseases, yet children affected with scalp ringworm are allowed the privilege of the school room, scattering contagion broadcast. Although its effect upon the skin is usually insignificant, its occurrence in a family or school is a real calamity, owing to its contagiousness, and the social ostracism it entails. Frequently these diseases are brought into a school and there disseminated to the extent of an epidemic, thereby seriously interfering with education. It is a common occurrence in my clinic to find cases of scalp ringworm and, upon questioning the individual, to learn that they are in attendance upon school. We, as physicians with the aid of the modern medical society can do much to correct these evils. That the number of cases of vegetable parasitic disease transmitted through our public schools is steadily increasing is proven by statistics and calls aloud for legislative restriction. Since 1844, Paris has had physicians as school inspectors and now Paris, Brussels and Rome have separate schools for children suffering with ringworm. During their residence in these schools, children receive education and treatment under the care of physicians. For fifteen years legislation through the efforts of the medical societies was sought in New York, but in vain. It was only when they entered the political field and publicly called legislators to account that they succeeded in establishing the Metropolitan Board of Health, the first of its kind (based on sound sanitary principles) in this country. Many other cities, among them Boston, Philadelphia and Chicago, have realized the enormity of this evil and have appointed school inspectors, either physicians or nurses, whose duty it is to visit the schools as frequently as possible and indicate to the teacher or principal each child affected with any contagious disease, parasitic or otherwise. All suspected cases are immediately excluded from the school until they can furnish a certificate from their attending physician stating that all danger of contagion is removed. Physicians attending such cases should withhold the certificate for several weeks after the disappearance of all diseased hairs and stumps. If the case exist in a boarding school or asylum the patient should be isolated if possible and all others who have been exposed be subjected to a thorough examination, sparing neither time nor trouble, and giving careful attention to all isolated stumps and suspicious scaly patches. The appointment of medical in-

spectors in the schools shows gratifying results, not only in the decrease of the per cent. of cases but also in the personal hygiene of the children, those who formerly came to school unclean gradually improving in their appearance and habits. Parents, to whom this disease is the scource of much anxiety, soon learn to appreciate the value of these measures and acquire a better understanding of the necessity of isolation. The writer would urge greater frankness to ourselves as well as to our patients in dealing with these diseases. The practitioner sometimes fails to appreciate the importance of detail, and carelessness in this respect is responsible for a number of cases. The physician's first duty in the management of ringworm is to prevent the spread of the disease to others. He should insist upon an examination of all other children in the family or school and, while making such examination, he should not forget that his hands, if not properly cleansed, may convey the disease to those as yet unaffected. The scalps of all the children should be thoroughly washed several times a week until all danger of contagion is past.

The individual under treatment should be required to sleep alone and use separate towels, combs and brushes, these articles being frequently sterilized to prevent reinfection. All domestic animals or pets which are found to be mangy should be either destroyed or isolated until by proper care they can be rendered incapable of the transmission of the fungus. As a rule the poorer the people the larger the number of cats and dogs they possess. The extra tax recently imposed by the legislature has done much to decrease the number of these nuisances and so lessen this means of transmission. The establishment of sanitary barber shops where brushes, razors, etc., are sterilized just before being used can do much to diminish this trouble. Persons who patronize these shops should provide their own equipment, whereby they will probably protect themselves from infection. On the other hand, infected cases should not be taken to the barber shop to have their hair trimmed or shaved, but it should be done at home and the diseased hair burned. Briefly considered, this seems a reasonable solution of this evil, and I believe we are justified in requesting the help of the law in our efforts to restrict this disease. Large expenditures are made yearly by both State and city for objects less worthy, yet little thought is given to the physical welfare of the child—the future dependence of our country. Prophylaxis has invaded the domain of nearly every disease; its science and practice are daily increasing and its field of usefulness becoming better known. Scientific research can demonstrate few more valuable triumphs than the results of preventive medicine.

Consultants to Bellevue.—At a meeting of the Trustees of Bellevue and Allied Hospitals held January 8, 1904, the following physicians were appointed Alienists and Neurologists to Bellevue Hospital: Drs. Frederick Peterson, Joseph Fraenkel, Edward D. Fisher, Bernard Sachs.

CRYOSCOPY OF URINE. THE METHOD OF CLAUDE AND BALTHAZARD.

BY F. BURTHE, M.D.,
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THE biological applications of cryoscopy have, among other interesting results, raised up a new theory as to the renal secretion, and furnished about the disorders of this function, as well as about the general nutrition, some indications of a very high value. Without any theoretic consideration or scientific discussion on the grounds and relative weight of the various processes used by several authors in order to apply cryoscopy to the physiological studies, I only wish to state the way that Claude and Balthazard, from Paris, have pursued, and the results at which they have arrived.

It is necessary to accurately collect the urine which was passed during twenty-four consecutive hours, so as to get an average urine from which the freezing point can be taken. This freezing point is found, in practice, to vary between—1° 30 C. and —2° 20 C. Claude and Balthazard name it J and express it by hundredths of a degree C., stating that the number so obtained represents the number of solid molecules dissolved in 1 c.c. of urine. That statement is perfectly allowable, as, according to de Coppet's law "the fall of the freezing point of a dissolution is proportional to the number of solid molecules contained in a given volume of this dissolution," so that if $J = -1°.30$ C., then there are a number of solid molecules proportional to 1.30, or more simply to 130, in 1 c.c. Now if V expresses in "centimeters cubes" the volume of urine that is passed during twenty-four hours, then the product $J V$ may represent the number of molecules eliminated with the urine of the day; and, in order to get some comparable results from the different subjects, one must refer to the unit usually chosen as characteristic of the living matter, that is to the kilogram of the body's weight. So that if P is the weight of a subject, one must divide by P the already obtained product $J V$, and then one will have a number $\frac{J V}{P}$ which expresses what Claude and Balthazard have named "the total molecular diuresis." This total molecular diuresis represents as well the number of molecules that have filtered through the glomeruli during the last twenty-four hours and for each kilogram of the body's weight. While in normal state this number varies from 2,500 to 4,000.

Tabling off from that total number of the excreted molecules, the number of the molecules of chloride of sodium, one will have a right to say that only elaborated molecules are left remaining. Accordingly the amount of chloride of sodium ($NaCl$) must be ascertained with great precision and in that process is obtained a number, p grams per cent., *e.g.*, for the use of which it is allowable to say that, in compliance with Blagden's law, as —0° 605 C., is the freezing point of a dissolution of $NaCl$ at 1 per cent., that salt

causes a fall of the freezing point of the urine, of p x 0.605, or, as before, there are in the urine p x 60.5 molecules of NaCl for 1 c.c. So that there are p x 60.5 x V molecules of NaCl excreted during the twenty-four hours and $\frac{p \times 60.5 \times V}{P}$ for each kilogram of the body's weight, number that we should have to take from $\frac{\Delta V}{P}$ in order to get the new number $\frac{\delta V}{P}$ named by Claude and Balthazard as "the diuresis of the elaborated molecules."

In good health that number varies according to the diet, the exercise and the activity of the nutrition, but it oscillates between 1,800 and 2,500.

We are now in possession of two valuable means of investigation about the renal secretion, as $\frac{\Delta V}{P}$ gives some information as to the number of molecules that have filtered through the glomeruli and consequently must vary in the same way as the activity of the circulation in the kidneys; while $\frac{\delta V}{P}$ points out the way which works the epithelium of the tubulis and so gives a measure of the urinary depuration.

To these two numbers Claude and Balthazard have joined a third one, $\frac{\Delta}{\delta}$ expressing the relation between the number of molecules that have filtered through the glomeruli and the number of elaborated molecules that have been excreted; that is to say, that $\frac{\Delta}{\delta}$ measures the rate of the molecular exchanges.

Between the three numbers there are necessarily some relations which in order to discover, Claude and Balthazard have studied a great many normal urines, by means of which they have been able to frame some scales of correspondence, enabling anyone to graphically represent the results of the study of any urine. According to these authors, the scale of

$\frac{\Delta V}{P}$ beginning at 0 progressively increases by 500

$\frac{\delta V}{P}$ " " 0 " " 300

$\frac{\Delta}{\delta}$ " " 1 " " 0.10

as may be seen in the following table, which shows what amount $\frac{\Delta}{\delta}$ must not exceed for each value of $\frac{\Delta V}{P}$ if the kidneys are sound.

$\frac{\Delta V}{P}$	$\frac{\delta V}{P}$	$\frac{\Delta}{\delta}$
3,000	1,800	1.60
2,500	1,500	1.50
2,000	1,200	1.40
1,500	900	1.30
1,000	600	1.20
500	300	1.10
0	0	1

The reader will note, and we beg leave to insist upon this remark, that, until now, there is nothing hypothetical in all that has been said; Claude and Balthazard have only translated in forms for the use of physiologists the laws of cryoscopy just as these have been worded by their authors.

We will now examine what applications they have made of their formulæ and what interpretation they have given to their results. For this purpose they have acknowledged the theory of Koranyi, to which we have alluded in the beginning of this paper, but that theory is not indispensable, and the results at which Claude and Balthazard have arrived by their researches would exist in their integrity and strictness, even if Koranyi's theory were not admitted. The interpretation only might be slightly different, and yet this would apply to a few of these results and not to all of them.

According to Claude and Balthazard, in *cardiac insufficiency* the rate of $\frac{\Delta V}{P}$ and $\frac{\delta V}{P}$ is low, and the more so that the circulation is slower; but, kidneys being sound, the corresponding values of $\frac{\Delta}{\delta}$ are also very low down. On the contrary, in *cardiac hyperstenia* the values of $\frac{\Delta V}{P}$ become higher than 4,000.

In *renal insufficiency* $\frac{\Delta V}{P}$ is normal or low, $\frac{\delta V}{P}$ very low, but $\frac{\Delta}{\delta}$ becomes exceedingly high in reference to $\frac{\Delta V}{P}$.

Close to these standards, allowing a diagnostic not yet wholly proved, it is possible to find many other forms sometimes more difficult of interpretation. For instance, the arterial hypertension of arteriosclerosis may be characterized by some high values of $\frac{\Delta V}{P}$ with $\frac{\Delta}{\delta}$ unsettled, as there is or is not some renal insufficiency. For some cardiac patients whose kidneys were at the same time insufficient, $\frac{\Delta}{\delta}$ had some values too high for the numbers of $\frac{\Delta V}{P}$.

Claude and Balthazard, though thinking their results sufficiently plain and precise to enable them to make a diagnosis, have always endeavored to make the clinic and cryoscopic examinations run parallel, using various processes of investigation at the same time with cryoscopy, and controlling, as many times as it was possible, their diagnosis by means of pathologic anatomy and histology. They have thus been able to describe a cryoscopic standard of cardiac hyperstenia and another of renal insufficiency. In the nephritis they have seen that there are, during the course of the illness, some periods of a sufficient permeability of the kidneys, and some other periods

of insufficiency, these last becoming more and more frequently until they culminate in a terminal period of total insufficiency. As for the substances dissolved in the urine, their elimination is relatively more abundant, apart from the uremic fits, in the interstitial nephritis than in the ordinary form of chronic Bright's disease.

But the formulæ are chiefly useful because they allow us to see in Bright's disease some latent insufficiencies which need a very long time to bring about some accidents of auto-intoxication. Repeated examinations during a few consecutive days may disclose some transitory insufficiencies hardly surmised after a mere clinic examination.

In the severe infectious illnesses, which may be complicated with heart or kidney disease, it is expedient to know early what is the functional value of these organs. Claude and Balthazard have determined the cryoscopic form of the urine in some cases of diphtheria and of typhoid fever, and found it sufficiently steady to show, through a change of the ordinary relations, that the heart or the kidneys are not perfectly sound.

Very special and nearly pathognomonic is the cryoscopic form in pneumonia. At the outset the values of $\frac{\Delta V}{P}$ are normal and those of $\frac{\delta V}{P}$ are often higher than normal, while the values of $\frac{\Delta}{\delta}$ are very low and nearing the unit; which is consequent with the absence of chloride of sodium in the urine. Two days after the fall of the temperature comes on a urinary crisis, which Pick had already observed during which $\frac{\Delta V}{P}$ and $\frac{\delta V}{P}$ slightly grow, while $\frac{\Delta}{\delta}$ increases suddenly and reaches, or even passes its normal value; and there is a urinary discharge of chloride of sodium. But this discharge, far from being transient, as is generally believed, lasts two or three weeks, as a long time is required for the resorption of the overflow.

At last, in pleurisy, the cryoscopic curve of urine plainly illustrates the various stages of the overflow's evolution; the values of $\frac{\Delta}{\delta}$ remaining low during the increasing and the stationary stages, only to rise suddenly when the overflow begins to be resorbed. Koranyi had pointed out the rapid fall of the relation $\frac{\Delta}{\Delta NaCl}$ at the time of the resorption of pleural overflows; Lesné and Ravault have recently confirmed that fact. It is easily seen that the relations $\frac{\Delta}{\delta}$ and $\frac{\Delta}{\Delta NaCl}$ do vary in opposite directions, $\frac{\Delta}{\delta}$ rising and $\frac{\Delta}{\Delta NaCl}$ falling when the amount of chloride of sodium in the urine increases.

After all, if we multiply the volume V of urine that is voided during twenty-four consecutive hours by the freezing point Δ, expressed in the hundredth of a degree C. of this urine, and divide the product by the weight P of the body, we get a value $\frac{\Delta V}{P}$, which represents the molecular elimination for the twenty-four hours and for each kilogram of the body's weight; while the elimination of the non-chlorined substances coming from the disassimilation is expressed by the formula $\frac{\delta V}{P}$. These two values may diminish and reach some very low values in cardiac insufficiency and in the renal impermeability too; this first result is beyond dispute and through it, the cryoscopy, is a way to appreciate scientifically and very quickly any urinary elimination.

Moreover, Claude and Balthazard have seen that the ratio $\frac{\Delta}{\delta}$ compared with $\frac{\Delta V}{P}$ may have a diagnostic significance and characterize the alterations of the renal epithelium. The relations between $\frac{\Delta V}{P}$ and $\frac{\delta V}{P}$ which express this renal insufficiency, have been empirically fixed by means of observation and anatomoclinical studies of a great many cases. The scheme of renal impermeability so found has always been conformable to the facts.

These results are easily interpreted by means of the Koranyi theory as to the renal secretion, which is corroborated by a certain number of physiological facts. Koranyi asserts that through the glomeruli filters a pure or nearly pure solution of chloride of sodium, which concentrates while in the tubules by some resorption of its water, and is enriched with the extractive matters from the blood by means of molecular interchange, so that for each molecule coming from the blood to the urine, one molecule of chloride of sodium passes from the tubules to the blood, and the secretion of elaborated substances is the result of the activity of the epithelial cells of the tubulis contortis. When this epithelium is injured, the interchange is, of course, less perfect and there is an excessive quantity of NaCl excreted; and then the value of δ becoming more and more different from the value of Δ the ratio $\frac{\Delta}{\delta}$ will be greater and reach, for a given value of $\frac{\Delta V}{P}$ some values higher than those which occur when the kidneys are sound. On the other hand, if there is a mere interchange of molecules in the tubules, the number of molecules that have filtered through the glomeruli is the same as the one $\frac{\Delta V}{P}$ found in the urine and this number of molecules being proportional to the rate of the circulation in the capillaries of the glomeruli the conclusion must be that $\frac{\Delta V}{P}$ is a measure of the circulation's activity.

Some authors have written that the Claude and Balthazard method was grounded on a far from

being demonstrated hypothesis. From what precedes it is easy to infer that it would be fairer to say that this method has its ground on facts, and that the interpretation of those facts only wants Koranyi's hypothesis. That interpretation, after all, is not necessary, the method, just as it is, has already given to its authors and several other observers, some results worth notice and in perfect compliance with the other means of exploring the renal function.

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THE PATHOLOGY AND TREATMENT OF OSTEO-ARTHRITIS.

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In a recent paper on the relation of articular rheumatism to other arthritic affections, the Russian writer Predtetschensky enumerates no less than sixteen varieties of joint disease, and doubtless the possibility of further differentiation has not been exhausted by him. With all deference it must be objected that such elaborate classification is not greatly to be desired. Effort should rather be made toward simplicity and unification. Thus all forms of joint disease which occur during the course of, or as the sequel to, the infectious or toxic diseases might well be collectively known as "infective" or "toxic" arthritis. Individually, such cases, by the adjectival use of the name of the primary disease in designating them, should remain linked with that disease, regardless of the extent and duration of the morbid process in the joint. This group, containing as it does both rheumatism and gout, is clinically very large, and in strictness should include many cases of chronic joint disease which at present are not within it.

With the exception of the cases due to simple traumatism, the remaining arthritic affections are swept together for the most part into the class called "Rheumatoid," and, consequently, it is in this heterogeneous collection that we find the most profuse and bewildering assortment of titles. "The domain of progressive deforming polyarthritis," writes Predtetschensky,[1] "will contain besides the essential polyarthritis deformans, and malum coxæ senilis, the varieties which have been known as polyarthritis chronica villosa hyperplastica, many cases of nodular rheumatism, and some of Heberden's nodules; others will be found to belong in the class of uric polyarthritis," and so on. It will be a decided gain if these and other irregular joint affections can be made to fall naturally into two or three well-defined groups.

In a previous paper[2] the writer has dealt with "Rheumatoid Arthritis," which is regarded as a distinct constitutional disease, usually if not always of toxic origin. Beginning with inflammation of the synovial membrane, eventually all the arthritic tissues are implicated in a morbid process essentially atrophic, and the joint becomes constricted, deformed, limited in its movements, and, in extreme cases, anchylosed. Muscular wasting and shortening conduce greatly to this result. The general symptoms are irregular fever, anemia, emaciation, pain, muscular twitchings and cramps, disturbed reflexes and other evidences of a constitutional polyarticular disease in which the nervous system is more or less deranged.

Osteo-arthritic affections constitute the other main division of the rheumatoid group. In osteo-arthritis, which may be either non-articular or polyarticular, the brunt of the disease falls upon the cartilages and articular ends of bones, not upon the synovial membrane as in rheumatoid arthritis. The changes in the affected joints are partly destructive and partly hypertrophic. As a rule the cartilage is the first to suffer. It becomes fibrillated and eroded, especially where it is subjected to pressure and friction. At the margin of the articulation where the morbid process is less intense and the proliferating cells are prevented from escaping by the overlapping synovial membrane, the cartilage hypertrophies and becomes heaped up in irregular nodules or ecchondroses, which give a lipped appearance to the articular borders. Subsequently these nodules undergo calcification or ossification; sometimes they break off and form "loose bodies" in the joints. The same double process of destruction and overgrowth takes place in the ends of the bones. Subjected to pressure and friction, they become flattened, worn away or absorbed, but in the parts free from mechanical influences, there is hyperplasia, ending in the formation of osteophytes and other bony enlargements. The synovial membrane is also affected;

it becomes thickened, indurated and its fringes hypertrophied, and in the latter stages of the disease may be destroyed by ulceration and absorption.

Ligaments and adjacent tendons undergo calcification or absorption. The whole articulation may thus become quite altered in its form, and its function almost if not quite destroyed.

This infection is seen most frequently in elderly people. It commences insidiously with weakness, stiffness and pain. The weakness is most perceptible if the affected joints are concerned in locomotion. The pain is either of a constant gnawing character, or consists of sharp needle-like thrusts. The stiffness, made worse by rest, improves or temporarily disappears during exercise. As the disease advances these symptoms become more severe; the joint begins to creak and grate on movement, its range of movement becomes mechanically limited by the presence of chondrophytes and osteophytes between and around the articular surfaces, and the muscles in the neighborhood of the joints become wasted and contracted. There may be considerable effusion into the joint. When this is absent, the affection is known as "Arthritis sicca." At no time is the general health seriously, if at all, impaired. The progress of the disease is very slow, and these patients live usually to a good old age.

The forms of osteo-arthritis which have received particular names are Heberden's nodes, spondylitis deformans, and malum coxæ senilis.

Heberden's nodes are the little bony protuberances upon the terminal phalanges often seen in old people, and, as pointed out by the writer elsewhere,[3] are to be found in such diverse conditions as gout, cancer, dilatation of the stomach, rheumatoid arthritis and syphilis.

As these nodes are simply an abnormal growth of bone, they are structurally quite different from the chalky deposits on the fingers seen in gouty cases. Their significance consists in being an early indication of a general tendency to osteo-arthritis.

Spondylitis.—The whole or part of the vertebral column may be affected by osteo-arthritis. Nodular deposits are formed at the edges of the articular cartilages which ultimately become ossified, and the contiguous ligaments and fibrous tissue are implicated in the same process. The intervertebral discs subjected to unusual pressure, become atrophied. If anchylosis occurs before this atrophy has proceeded far, there is little or no spinal curvature, but if it occurs afterward, the deformity may be considerable. The condition is then known as spondylitis deformans. In many of these cases there is a history of gonorrhea. The spine alone may be affected, but generally either the hips or the shoulders, according as to whether the cervical or lumbar region of the spine is the part diseased, are also involved. This becomes the Spondylosis rhizomeligue of Strümpell and Marie. The spinal deformity and rigidity described by Van Bechterew under the name "kyphose heredo-traumatique" appear to be simply the secondary symptoms of a chronic meningitis, the ligamentous and osseous structures of the vertebral column being unaffected.

Malum Coxæ Senilis.—Osteo-arthritis is especially apt to affect the hip-joints of elderly people, and at first it was supposed that it never manifested itself in any other way. Hence this particular name, which very properly was discarded soon after it was originated, and it ought not to be in use at the present time. In the hip the disease generally follows an injury, such as a fall upon the trochanter. Pain, difficulty in walking, or a slight limp are among the earliest symptoms.

The intrinsic pain of the joint may be elicited by pressure over the capsule and by passive movement of the limb in various directions. Usually, the patient complains far more of the referred pains. These may be very severe in the region of the external cutaneous nerve, the condition thus somewhat resembling meralgia paresthetica; or they may be referred to the knee as in tuberculous coxitis. Often the pain is that of sciatica, and unquestionably, in many instances of apparently uncomplicated sciatica, the underlying condition is that of osteo-arthritis of the hip.[4] In an article just published,[5] Bruce goes much further, the careful study of 418 cases of sciatica convincing him that this affection is simply the forerunner of osteo-arthritis, "sciatica when unrelieved, eventually terminating in rheumatoid arthritis, which in its turn leads to bony deposits on the femur, and also on the ilium, these changes again proceeding to anchylosis between the femur and the pelvis." In yet other cases, the pain is in bulk, the sufferer clasping the thigh all around and saying that pain is in every part of it.[6] This widespread distribution of pain is applicable to the fact that in a number of these cases, the lower part of the spine is osteo-arthritic as well as the hip, consequently the lumbar and sacral nerves emerging from the affected region are continually being swept by currents of pain. Muscular wasting is quite marked and the limb may be considerably shortened, especially in those cases where the neck of the femur is undergoing the rarefaction and absorption incident to old age.

Other joints apt to suffer, but which have received no particularly descriptive names, are the shoulder and the knee.

Pain, limitation of movement, creaking and grating and muscular wasting are the principal symptoms of the disease in the shoulder as elsewhere. Where the enlargement of the head of the humerus is smooth and rounded, the general aspect of the joint may for the moment mislead one into thinking a subcoracoid dislocation is present, as in addition to the symptoms of pain and restricted movement, there is a marked prominence in front of the shoulder and what seems to be a depression behind. In the shoulder

as in the hip, the disease often follows an injury, especially in the old.

The knee is the joint which is attacked most frequently. Often both knees are affected, either concurrently or consecutively. One of the earliest symptoms in these cases may be sudden, unexpected and often most embarrassing weakness of the knees, which give way completely. A patient of the writer's affected in this manner while out walking, was compelled to clutch desperately at a lamp-post to save herself from falling, and the fear that passers-by would think she was intoxicated added greatly to her distress. The creaking and grating, nodular enlargements and other evidences of the disease are similar to those in other affected joints and need no particular description.

The question now arises: Does this arthritic complex of enlargement of the ends of the bones, calcification of ligaments and destruction of cartilage and synovial membrane, occur in other diseases? It is an important question because the comparatively few cases of osteo-arthritis, now deemed idiopathic, have no characteristic symptoms, constitutional or otherwise, and if practically identical articular lesions are found in a variety of conditions, it may reasonably be assumed that osteo-arthritis is always a secondary affection. The answer must be in the affirmative, for to mention only a few diseases out of many, the morbid anatomy of the joints in such dissimilar diseases as locomotor ataxia, gout, and hemophilia is often practically the same as in osteo-arthritis.

Further, in such cases as syphilis and osteitis deformans, in which the characteristic osseous lesions occur in the shafts of the bones, not infrequently the joints also suffer and become osteo-arthritic. "At the edges of the condyle," so runs the description of a syphilitic knee-joint, "were nodular outgrowths of cartilage, such as are commonly seen in osteo-arthritis; none of them were of large size; the external condyle was lipped in a very marked manner."[7] In a case of osteitis deformans, the arthritic changes "were identical in character with those found in certain types of rheumatoid arthritis, or perhaps more correctly, osteo-arthritis."[8] Conversely, in acute articular rheumatism, the shafts of the bones may be affected as well as the joints, periosteal nodes often forming upon them, and in cases of osteo-arthritis, hypertrophy of the shafts and epiphyses has been noticed.[9] From this it may be inferred that allowance being made for the effects of articular movements, there is no essential difference between overgrowth of the shaft of a bone and overgrowth of its extremities. To ascertain precisely the nosological position of osteo-arthritis, it will be necessary therefore to collate comprehensively all the conditions in which there occur arthritic or osseous lesions more or less resembling those found in osteo-arthritis. This may conveniently be done by forming them into three divisions:

I. Infective or Toxic. II. Nutritional. III. Traumatic.—I. The characteristic lesions of osteo-arthritis may occur during the course of many infective or toxic diseases. Thus we find them in locomotor ataxia,[10] tuberculosis,[11] leprosy,[12] syphilis, gonorrhea (Rheumatisme blennorrhagique a forme nouese), rheumatism, gout, rheumatoid arthritis and in syringomyelia,[13] a disease probably of infective origin also. They are also found in cases of chronic gastro-intestinal antiintoxication particularly in the form of Heberden's nodes,[14] in uterine disease[15] and during the systemic disturbance incidental to the menopause, in chronic pulmonary affections (hypertrophic pulmonary osteo-arthropathy), and in other local conditions from which septic infection may arise. Whether the irritation inducing the arthritis in these diseases is from the irritant action of the germs themselves which have obtained access to the joints by way of the blood stream, or from the chemically irritant action of the toxins elaborated by them, is an interesting question. Poynton and Payne[16] isolated a diplococcus from the diseased knee-joint of a dead human being, and injected a culture of it intravenously into a rabbit, which in turn developed an arthritis of the knee. Ten weeks later the animal was killed and the bones of the knee-joint were found to be thickened and lipped. On the other hand it has been shown by experiment that the prolonged administration of small doses of inorganic poison is capable of inducing hyperplasia of bone. No doubt the action of toxins is the more persistent and damaging, and apparently they may remain in the system and continue to produce their harmful effects, long after the original disease has subsided and the germs have disappeared from the fluids of the joints.

Those diseases in which there is a very pronounced arthritic diathesis, as rheumatism, gout and rheumatoid arthritis are exceptionally prone to osteo-arthritis and furnish most of the polyarticular cases, it being assumed in this connection that rheumatism is an infective disease, and that the characteristic features of gout and rheumatoid arthritis are due to toxic substances present in the system. For convenience of expression, and because the writer believes that the osteo-arthritis is simply the terminal expression of the original disease, new terms are used in the description of these conditions, which it is hoped will make for clearness, and not cause confusion to be worse confounded.

a. Rheumatic Osteo-arthritis.—The term "chronic rheumatism," as commonly used, covers a multitude of joint troubles. It should strictly be limited to those cases of acute and subacute articular rheumatism in which there is never complete recovery because the rheumatic process continues to smolder on in the joints, or else the tissues of the joints have been so damaged, or their vitality so impaired, that they never return to their normal condition even though the specific rheumatic process may long ago have ceased. It is easy to understand how cold and wet and excessive use in such cases may cause a recrudes-

cence of the disease. There are several degrees of chronic rheumatism. In the mildest cases, pain and stiffness are the only symptoms, with perhaps a little synovial crackling. In others, there is thickening of the synovial membrane and capsule which eventually may contract and so cause deformity, but cartilage and bone are unaffected, the "fibrous rheumatism" of some authors. In still another group, after repeated attacks of acute or subacute articular rheumatism, lipping occurs or osteophytes are formed, the disease thus merging into osteo-arthritis.[17]

b. Gouty Osteo-arthritis.—It is a matter of common observation that osteophytic formation and the destruction of cartilage may result from repeated attacks of gout in a joint.[18] Osteo-arthritis occurs still more frequently in women who belong to gouty families, although gout itself may seldom or never attack them in its typical form.

According to the latest theory of the nature of gout, as expounded most suggestively by Woods Hutchinson,[19] the excess of uric acid in this disease is ascribed to the disintegration of those leucocytes and fixed cells of the body which have been destroyed in the process of combating or neutralizing certain toxins of gastro-intestinal origin. Uric acid is a chemical end product of the disintegration of the nuclein of these cells, and the failure of the system to eliminate it, leads to its disposition in the various tissues of the body, particularly in the joints. Another end product is phosphoric acid, and it is possible that the retention in the system of the compounds of this substance to an abnormal amount, may be one of the causes of osteophyte formation in chronic gout, for Wegner has shown that the prolonged administration of small doses of phosphorus to animals induces a very marked hyperplasia of bone. But whether the irritation causing this hyperplasia arises from the excessive phosphates in the system, or from the mechanical irritation of the crystals of sodium biurate deposited in the tissues of the joints, or from the toxins which originated the primary disease, there is undoubtedly a very close connection between chronic gout and osteo-arthritis, as shown by the frequent occurrence in gout of osteophytes, lipping of bone and the other morbid changes characteristic of osteo-arthritis, "and these changes are not peculiar to gouty joints, but are identical in nature and character with those which are produced by repeated and chronic inflammation of the joints from rheumatism or other cause."[20]

c. Rheumatoid Osteo-arthritis.—This is not a very desirable designation, but its meaning is sufficiently clear, for just as osteo-arthritis may follow in the trail of articular rheumatism and gout, so it may follow rheumatoid arthritis. One or two writers[21] contend that in such cases we have evidence of two distinct concurrent diseases, and deny that hypertrophy of bone ever occurs in rheumatoid arthritis as an integral part of it. Abstractly this may be so; clinically, the distinction is not of great importance, and it is doubtful if it can be maintained. In all chronic joint diseases a double process is at work: the one leading to atrophy and destruction, the other to repair and overgrowth. No doubt in childhood and youth, owing to the special proclivities at that age of certain tissues over others to become diseased, and their greater vulnerability to destructive agencies, the arthritic lesions may be altogether atrophic; but in those who rally and become well nourished in spite of the continuance of the disease, and in those instances where rheumatoid arthritis does not appear until middle life is reached, the characteristic osteophytes are often found in the affected joints.

Of course as to all these cases following rheumatism, gout, rheumatoid arthritis, and other toxic diseases, it may be asserted that we have one distinct disease following another, as tuberculosis may follow measles. The weight of evidence however is in favor of the view that the osteo-arthritis is not due to the introduction of any new element of disease, but that it is simply the effect of the lingering irritation of the tissues of the joints by the toxins of the primary disease from which the patient has never recovered.

II. Nutritional.—In certain hypertrophic affections of the bones and joints, there is imperfect or perverted nutrition. In rickets, accompanying the defective ossification, due to the lack of certain necessary elements in the food, there is frequently hyperplasia as well, and among the bones so affected are the long bones with their articular ends. This hyperplasia of bone is suggestive of the existence of a subacute or chronic inflammation, a view supported by the experiment of Kassowitz, who produced a state of bone corresponding to that of rickets, by inducing hyperemia in the limb of a growing animal by means of repeated applications of an Esmarch bandage; but it may be owing to the impetus of the formative process expending itself abnormally, because thwarted in its normal direction from the want of proper material.[22]

Another very important factor in constructive metabolism is the internal secretion of various glands. Any abnormality of these may cause overgrowth of tissue, and apparently, pathological alterations in one gland produce alterations in the others.

In acromegaly, which depends according to our present knowledge, upon disease of the pituitary body, hypertrophy of the thyroid gland, and the functional persistence of the thymus gland, in addition to the characteristic enlargement of the bones of the head, feet and hands, there is a tendency in all the bones to exaggeration of normal ridges and tubercles, and to the formation of osteophytes in the neighborhood of the articulations. The aberrant growth of the bony skeleton in gigantism depends upon a very similar condition, as proved by a recent instance in which there was an epithelioma of the pituitary body and hypertrophy of the thyroid gland.[23] So also at the other pathological extreme. In a dwarf, though the long bones were diminished

in length, "the articular ends were swollen into irregular globular masses," and Hektoen, who describes the case very fully, found the pituitary body and thyroid gland abnormal.[24] Mendel calls attention to the great similarity between the symptoms exhibited by dogs whose thymus glands have been removed, and those of rickets in children, and quotes another observer, who ascertained as a positive fact that in all rickety children, there is something wrong with the thymus.[25]

In osteomalacia, a disease which seems to be in some cases dependent upon an abnormal condition of the ovaries, as it has been cured in several instances by their removal,[26] the atrophied bones are in many parts encrusted with osseous deposits. This leads to Brown-Sequard's theory that all senile change, which necessarily includes the proneness of the tissues to calcification and ossification, depends upon the loss or diminution of the generative functions. In the French giant Constantine, who died recently at the age of twenty-nine years, the genital organs were atrophied, and sometimes they are atrophied in acromegaly.[27] Wieting states that the lack of regulative influences from this condition, as in eunuchs, is responsible for overgrowth of the skeleton, reporting in detail the case of a young giant almost nine feet high.[28]

From all this it is evident that whenever there is osseous hyperplasia which cannot be traced to any other cause, there is a possibility of one or other of these glands being at fault. The precise action of their secretions is not yet fully explained. Perhaps they do nothing more than regulate metabolic processes, preserving the normal balance between repair and waste; or what is more likely, they may have the power of destroying or converting into harmless compounds, certain poisons the product of cellular activity, which, if allowed to remain in the system unchanged, act as irritants and stimulate the tissues to overgrowth.

III. Osteo-arthritis of Traumatic Origin.—A large proportion of the cases of monarticular osteo-arthritis are due directly or indirectly to some form of traumatism. In many instances the injury falls upon the tissues predisposed to osteo-arthritis by advanced age, or by some antecedent disease such as syphilis, tuberculosis, gout and rheumatism; but that abnormal growth may follow an injury of tissues previously quite healthy, is proven by the large nodes from this cause on the antlers of stags.[29]

The injury causing osteo-arthritis may be sudden and direct, as a blow, sprain, fracture or dislocation. Extremely heavy labor throwing an excessive strain upon the joints will also produce it; this occurs with great frequency in horses as well as in human beings.[30] A milder form of the same morbid process is seen in the thickened phalangeal joints of washerwomen, and of ardent baseball players. The irritation arising from the presence of a foreign body in the joint, such as the fragment of a needle, will cause osteo-cartilaginous overgrowth.[31] In hemophilia, the mechanical irritation from unabsorbed blood clots in joints which have been the seat of repeated hemorrhages must be an important factor in starting the morbid process which ends by making such joints typically osteo-arthritic.[32]

Injury or irritation of any and every kind is thus capable of starting an osteo-arthritis in man and the lower animals. In this connection it is interesting to note that the lower the form of life, the greater is the tendency to excessive growth after injury; and as an evolutionary corollary, the tissues of the human body which show the greatest potentiality for reproduction when stimulated by injury or inflammation, are those which are the least highly organized and most widely distributed, such as cartilage, bone, and the other tissues of the connective tissue group. Indeed, comparative anatomists now tell us that our bones are merely the half dead calcified framework of the body, built up largely from waste material, and therefore of the same lowly excretory origin as the shell of the oyster, and the chitine armor of insects and crustaceans.[33] In the oyster itself we can see the effects of irritation by comparing the thin, smooth shells of those which have lived in quiet shallow waters, with the thick, rough, laminated shells of oysters which have to contend with the pressure and buffeting of the deep sea.

The great majority of traumatic cases of osteo-arthritis are found among elderly people, and as "malum coxæ senilis," and "senile arthritis," are terms still commonly applied to them it is necessary to examine these senile cases a little further. "But what a relative word senility is. In medicine we do not count the ages of people by the revolutions of the earth around the sun, but we measure them by the involutions of their own morbid processes." A man may be prematurely old in his joints as well as in his arteries.

But in spite of the fact that few old people escape a touch of rheumatism in one form or another, there is of course no such condition as a purely senile arthritis. It is true that the bones in common with the other tissues of the body, undergo certain atrophic changes which are part of the normal involuntary process of the skeleton in old age; but in the absence of disease and injury, the bones as a rule retain their general size and form, simply becoming thinner, lighter and weaker. Even the commonly accepted statement that the angle between the neck and shaft of the femur becomes smaller with age, does not hold true of the normal subject, at least this alteration does not invariably take place. At the same time a very slight injury seems sufficient to start an osteo-arthritis in adanced life, as shown by the fact that osseous anchylosis of the vertebræ is often found post mortem, of which no complaint was made during life, so imperceptible was its course. In these senile cases, no doubt other factors beside the excessive reaction to injury, contribute to the hyperplasia, such as the narrowing of the channels which

remove waste products; the affinity of dying tissue for the lime salts in solution in the body, their combination with them, and subsequent organization into bone; and, possibly, the loss of regulative influences on metabolism resulting from sexual decline, a view which receives some support from the fact that in women, osteo-arthritis generally appears about the time of the menopause.

Lastly, to quote the polite intimation in Shakespeare to Jack Falstaff, who can hardly have escaped this disease, considering he had rheumatism, gout, syphilis and several others beside, osteo-arthritis is "blasted with antiquity." Evidences of it have been found in human remains almost prehistoric, and in the bones of animals now extinct. It has also an extremely wide zoological distribution. Blandford Sutton has detected the disease in the joints of a snake's backbone, in birds of various kinds including an ostrich whose neck was affected, in cats, dogs, leopards, lions, tigers, horses, oxen, sheep, kangaroos, bears and many other animals.[34] It has also been observed in the vorqual, a species of whale.[35] The precise cause of the disease in these animals can only be conjectural, but we can be quite sure that it does not depend to any large extent upon habitat, nor can it be due exclusively to any particular form of diet.

Summing up the etiology of the disease, it is evident that whenever the tissues of the joints suffer from some low form of chronic inflammation following disease or injury, or are kept in a continual state of irritation from overstrain or from the presence of foreign substances in the joints, or their nutrition is impaired by some glandular disturbance, then osteo-arthritis may occur. We cannot say it is altogether a disease of toxic origin but as "toxic substances wreak their heaviest vengeance on the joints," it is in those diseases in which toxins are formed abundantly, that we may expect to find osteo-arthritis, and as a matter of fact do most frequently find it.

The point gained in proving osteo-arthritis to be simply a secondary affection, is that by inseparably linking it with the primary condition of disease or injury, a large number of cases of joint disease which at present stand unrelated and in confusion, are definitely grouped, and the classification of joint diseases becomes at once more intelligible and orderly.

Treatment.—General.—The medical treatment is that which is appropriate for the primary condition. Whatever source of systemic affection there may be must be removed and the toxins eliminated from the system.

Drugs such as the alkalies are often prescribed in this disease for the purpose of eliminating from the system uric acid supposed to be in excess. They may do good by combating intestinal fermentation, but according to recent researches it is extremely doubtful if they combine with uric acid in the human body as precisely and energetically as they do in the chemical laboratory. Even if they do, they are only useful in those cases of osteo-arthritis with the gouty diathesis. The salicylates may be given in the rheumatic cases for the relief of pain. Except from the use of mercury and the iodides in syphilitic cases, no drug that the writer is aware of, is capable of reducing to any appreciable extent, the enlarged bones of this disease. Much may be done, however, to check their growth especially in those cases wherein the internal glandular secretions are defective, by giving preparations of the glands which are in fault. The dietary is important. Bezley Thorne, of London, who has had a very large experience in the treatment of this disease, informs the writer that he puts his patients upon what is practically an antidiabetic regimen, and gets good results. Change of climate is often beneficial and a prolonged visit to any of the well-known thermal springs will very greatly improve the patient's general condition.

Local.—Many of the cases of osteo-arthritis find their way to the osteopaths whose vigorous manipulations occasionally do good, but often work great harm. It stands to reason that as long as irregular nodules of bone and cartilage are in the course of formation on the articular surfaces of the joints, even ordinary wear and tear, much more the violence of osteopathic exercises, will stimulate to still greater osseous development. In the early stages of the disease, rest and alleviation of pain are necessary. To obtain the former, mechanical measures for the relief of interarticular pressure, and even for immobilization of the joint may be required. Yet this phase of treatment must not be unduly prolonged, or the tendency to permanent stiffness will be increased. As soon as possible after all acute inflammation has subsided, the joints should be given baths of superheated dry air, followed by gentle passive movements of the joint and massage of the neighboring muscles, gradually increasing the range of motion during the exercises, but never so far as to cause severe pain and inflammation.

This form of treatment by improving the nutrition of the joint and removing the morbid products of the disease, often accomplishes a great deal in diminishing the stiffness, pain and general weakness, and the tendency to muscular atrophy.

In very advanced cases, the forcible manipulation of the joint under an anesthetic has occasionally effected temporary improvement, but, as a rule, only in those cases where the stiffness and crippling depended on fibrous adhesions which were thus broken down. It is hardly advisable to attempt in this way to break off the osteophytes and push them out from between the articular surfaces, as such fragments will always be foreign bodies in the joint, and will probably cause irritation. The aim of all treatment must be to check the morbid process, keep the patient comfortable, and secure, as far as possible, freedom of movement in the joints. In advanced

cases the less that is expected, the greater will be the satisfaction with every gain in this direction.

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BOVINE TUBERCULOSIS.

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The exact relation of bovine tuberculosis to human tuberculosis is not yet made out but when this relation has been definitely ascertained it will no doubt be found to be a very close one.

The morphology of the bacilli is practically identical, the bovine bacillus being slightly shorter and a little thicker than that of human origin. They grow on the same media, take the same stains and each produces in many experimental animals the pathological changes common to tuberculosis. Of the two, the bovine bacillus is pathogenic for a wider range of animals than is the human bacillus and the morbid changes which follow its introduction are much more marked and the disease is much more rapidly fatal than is that produced by the human bacillus.

In a number of instances human tuberculosis has been experimentally transferred to cattle and, accidentally, a number of well authenticated cases of bovine tuberculosis have been transmitted to man. Hence, the two diseases must be held to be identical in man and in bovines, the only differences being those which might be expected in mammals differing so widely from each other.

Personally, I believe that the milk of tuberculous cows is just as dangerous as the sputum of the consumptive patient and that it produces fully as many cases of tuberculosis in man as come from bacilli of human origin; and it is very probable that those cases derived directly from the cow are more rapidly fatal than are those which have for a number of generations been confined to man. In other words, I believe that in the cow we find the natural habitat of the tubercle bacillus.*

This view is strengthened by the fact that in a very large percentage of the cases of human tuberculosis we are able to trace no source from which the disease has originated. My own records show that in fully one-half of all cases seen there is no history of tuberculosis in the family and the patients have not, to their knowledge, been at any time in close contact with the disease. They also show that there are fully as many cases from the rural districts as from the cities. This would not be likely to be so unless there were some prolific source of infection in the country.

It is estimated that there are in this country not less than 2,500,000 tuberculous cows, and from these, milk, butter and other dairy products are daily distributed to our homes. Of these products, milk is most dangerous as it is used in the uncooked state and is itself a good culture medium for the bacillus.

Milk from tuberculous cows is unfit for use no matter how slightly the cow may be affected and without regard to whether the udder is diseased or not. Of course the more extensive the disease, and the more the udder is involved, the more dangerous the quality of the milk. But if any cow respond to the tuberculin test she should at once be condemned for dairy purposes, as foci of infection may be present in the udder and may not be sufficiently large to be detected by any known methods of examination; nor is it known that milk from tuberculous cows whose udders are healthy is free from bacilli. In fact, the contrary is held to be true. Certain it is that all tuberculous cows are sick cows and no animal is suitable to furnish milk for use that is not in a perfect state of health.

Milk from an infected dairy herd is especially dangerous to children whose diet is so largely composed of this single article of food. It undoubtedly contributes largely to the summer diarrheas which are so common in infantile life and, if the child then escape, it may only be to be stricken down in early life by the same insidious germ which has lain latent for many years.

It is a well-known fact that cattle may be fat and sleek and to all outward appearances in perfect health and yet be perfect hotbeds of tuber-

* See author's paper "On the Natural Habitat of the Tubercle Bacillus," in New York and Philadelphia Medical Journal, Dec. 19, 1903.

culosis. The disease is less rapidly fatal in bovines than in man, probably because the germ is in its natural environment when in the tissues of the cow. Few cattle also are permitted to live sufficiently long to die of tuberculosis; few indeed are permitted to die a natural death from any cause, and not many live to the age of five years. Live stock men who have estimated this percentage for me say that not more than two per cent. of cattle escape the butchers' block.

By the tuberculin test only may it be ascertained whether cows are suffering from tuberculosis and, so reliable is this agent, that all cows intended for dairy purposes should be tested with it by competent veterinarians at least once each year, while all additions to the herd should be tested before being permitted to mingle with the other cows. This will be done only when laws and ordinances require it before milk may be sold to consumers.

There has been an earnest effort on the part of physicians, veterinarians and other well-informed people during the past few years to stamp out tuberculosis in our herds of cattle and especially in those which supply milk to cities and towns, but these efforts have been met in many parts of the country by the most bitter opposition on the part of dairymen and live stock men. It has been feared by them that financial loss would follow should the presence of tuberculosis be found in their herds. A recent experience in this city fully demonstrated the spirit of opposition from these sources. As a result of local agitation, the State Veterinarian of Iowa tested the dairy herds supplying milk to the city of Fort Dodge, a city of some 15,000 inhabitants, and found that 25 per cent. of all the cows in these herds were tuberculous. They were condemned for dairy purposes and an attempt was made to have a city ordinance passed for the purpose of protecting the public against like dangers in the future. Able attorneys, also residents of the city and consumers from the dairies, were employed to oppose the ordinance and it was defeated. The public was wholly apathetic and one dairyman, who refused to have his herd tested, continued in business without the least loss of patronage, although he sold his milk at the same price as those whose herds were now known to be free from disease. Later a local butcher bought the condemned cattle and sold them on the block to the residents of the city. This fact was published by a local newspaper and did not even excite comment. And yet this is a community of average intelligence.

This public apathy presages a long and almost hopeless fight against tuberculosis in our dairy herds. So utterly hopeless was it here that I found it necessary for the protection of my own family to purchase cows for private use.

The flesh of tuberculous animals is less dangerous than is the milk, on account of the high temperature to which it is subjected in cooking. Meat taken raw, however, is but little less dangerous than is the milk, and the high mortality from tuberculosis among the American Indians is no doubt in large measure due to the inferior quality of the beef supplied to them by the contractors and which is consumed by them largely without previous cooking.

The pasteurization and sterilization of milk have no doubt saved many lives, not only from tuberculosis but from other diseases whose germs find their way into the milk. But the changes produced by heat are undesirable on account of frequent alterations in the taste, rendering it less palatable than in its uncooked state. If properly pasteurized, however, the change is scarcely perceptible. This is, of course, making the best of a bad bargain—doctoring the milk when the cow should be removed from the herd.

Tuberculosis is far less common among cattle on the open ranges than in those confined in barns, a fact which speaks volumes for free ventilation and life in the open air and sunshine.

The problem of bovine tuberculosis, and of a proper milk supply, is one of vast magnitude, involving millions of dollars on the one hand and many lives on the other, and much time and patience will be necessary in its solution. The unfortunate utterances of Koch at the London Congress of Tuberculosis have materially lengthened the time necessary to stamp out tuberculosis in our dairy herds.

NEURASTHENIA.

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THIS name, which describes a group of mental and nervous phenomena, has at the present time, firmly established itself in the nomenclature of nervous and mental affections. The refinement and simplicity of modern times has brought forward this modern name from the various types of mental and nervous diseases.

Only a few years ago, Hammond and a score of other notable writers made no mention of this modern affection. At the present time medical journals are replete with articles upon this subject, and no up to date work upon the practice of medicine, nervous or mental diseases would be considered complete without devoting many pages, and even a whole chapter to its consideration.

Nerve weakness is nothing new, and probably existed in ancient times in some degree or form, and it is not at all improbable, but what all of the various symptoms establishing this new affection can be found under the various mental and nervous conditions.

Berkley says neurasthénia is primarily an affection of the nervous system, and that the disease belongs to the type of degenerative neuroses. That this condition is rapidly growing among all civilized nations is accepted as a truth beyond question. A quotation from Dr. Evarts does not seem to be altogether out of place here, who says, "That there is among mankind at the

present time, a large and increasing proportional number of persons of variously defective and abnormal mental capabilities and dispositions, and whose conditions are not pathological or amenable to medicine." This opinion will certainly be indorsed as true by a large number of observing physicians. As an etiological factor, it has been claimed that modern civilization, higher mental training, the struggle in life for financial and social standing, the many home and family cares, financial failures, and sudden mental and nervous shocks of various kinds, are contributing factors, as well as childbearing in women, and lack of wholesome, nutritious food, alcoholic drinks, syphilis, sexual excesses and masturbation have each and all been assigned as sufficient cause.

Dana says men and women are about equally affected, although he dedicates his chapter on neurasthenia as being synonymous with nervous women. Berkley thinks there is a preponderance of females. The Hebrews are said to be especially prone to this affection, while the Germans and French are much less affected, while the Americans perhaps lead all nationalities. It has been thought that city life, by the various features it presents, adds much to cause this condition, but cases are quite frequently seen in the quiet rural districts. In early life, young children frequently show lack of nervous stability, and in a measure are predestined to such conditions. Such children are prone to have convulsions from dentition, and other trivial causes. They are frequently quarrelsome, and as they grow older, given to various morbid impulses, and when the period of manhood or womanhood is reached, they are not well prepared for the activities of life, and frequently develop into one-sided men and women.

The lack of moral training in childhood, and the proper prompting and toning of judgment upon the developing mind and nervous system, and the want of good, sensible suggestions to the flexible mind, are without doubt factors which contribute to the bringing about of this mental and nervous condition. That heredity plays an important part in this affection in not doubted, and that an unstable, faulty, and defective mind, and nervous system is frequently the inheritance begotten by the union of one or both parents, who are neurasthenic, alcoholic, or syphilitic, which too frequently lies behind the affection to show itself in later years from appearently various and trifling causes. Dana says all women and many men are naturally endowed with a hysterical temperament.

The neurasthenic mind is not always a stupid, sluggish one, but very frequently the reverse. In men the perfect type is most often seen. In women the neurasthenic is often blended with hysteria, melancholia, and other types clinically have been designated as cerebral, spinal, genital, traumatic, acute hystero and gastric. The neurasthenic, like the hysterical mind, is very receptive, and frequently courts sympathy. It is entirely probable that a healthy, rugged mind and nervous system, in a healthy body, is seldom, if ever upset, even from extreme causes, and when so, it is most easily corrected. Improper suggestions to this class of afflicted people, at various periods of life, either by designing advertisers or not infrequently ignorant people, has something to do in preparing their minds for the final break down.

Too much stress is often placed upon the change of life by overzealous women, and no doubt that this constant looking forward to the inevitable period, when this awful crisis shall come, in some women has no good, but evil effects. Perhaps, too, that physicians have thoughtlessly, and possibly at times for mercenary purposes, suggested and treated this class of women for uterine and sometimes other imaginary difficulties, thereby rendering her a mental invalid, for a portion of her life at least. Organic diseases of the uterus, ovaries and appendages, seldom if ever, produce neurasthenia, unless it be by producing first a state of adynamia.

The conditions which best describe a well-marked case of neurasthenia seldom appear till the period of manhood or womanhood is reached, when the active cares and burdens of life have begun, when they increase up to the fortieth year, and sometimes the fiftieth year, after which cases are much less frequently seen.

The symptoms that the neurasthenic, or nerve bankrupt, may present for consideration are legion, and may almost exhaust the whole vocabulary of medicine, although there are most usually a few ailments that predominate. The vasomotor disturbances of the vascular system, the tumultuous beating of the heart, the dyspepsias, the genital affections and insomnia are among those proving very annoying. General weakness and lassitude are sooner or later complained of by many. The mental depression which frequently is present, has a tendency to diminish all of the secretions, consequently constipation, stomach and intestinal digestion are often complained of. The urine is frequently, but not invariably scant, and the specific gravity is high, and oxalates and phosphates are found in abundance. Sometimes various perversions of the special nerves of hearing, seeing and tasting are present, and the various catarrhal conditions are sources of much dread and fear. And the hyperesthesias and anesthesias are quite common. The various phobias sometimes add to the mental misery, a state of constant fear of various things, impulsive, almost irresistible desire for news, and even to read letters of others has been observed. Imperative, compulsory ideas may present themselves in the course of the daily routine of the neurasthenic, although Metler says there is a marked difference between the imperative conception of a neurasthenic who conceives the idea that he must not cross a certain thoroughfare or street, who laughs at his delusion, in contrast from the imperative conception emanating from

a diseased context to do a certain act which might be the slaying of his fellow-man.

The neurasthenic is not infrequently endowed with a jealous, unreasonable, sometimes a quarrelsome disposition, and from the long lists of tales of woe filed in divorce proceedings in our trial courts, it would not seem at all improbable, but that this class of individuals furnish their full quota.

In the differential diagnosis, the symptom complex of the neurasthenic may closely resemble and mask some very grave mental affections. And the differential diagnosis may require the most careful study and sound judgment. There are certain cases that may require excellent knowledge of the whole field of internal medicine before correct conclusions are reached.

The treatment of the neurasthenic should consist both of moral measures and medicinal remedies. No physician can accomplish much without fully gaining the confidence of his patient, and the physician's ability to restore his patient to mental and physical health will depend largely upon this proposition. The skill and tact and patience to successfully treat this class of individuals, who frequently are fairly shrewd, is fully as great as that required to treat a pneumonia or a typhoid fever patient. Moral treatment should always be enforced, supplemented by therapeutic agents of known value. The bromides sulfonal and trional are frequently used to meet certain indications, as well as strychnine, iron and phosphorus, or the glycerophosphites. Cascara, sagrada and pepsin are useful for constipation and indigestion.

One of the chief aims of the physician should be against polypharmacy, as these people think they need a remedy for every imaginary ailment. The Weir-Mitchell rest cure and massage has been successful in a certain class of cases. Alcoholics in some cases may be of benefit, but their indiscriminate use, as well as that of opium, morphine, chloral and cocaine, should command the earnest consideration of the physician.

Nutrition is frequently below normal, and a plentiful supply of well-selected and properly cooked food should always be insisted upon. Neurasthenic patients frequently drink too little water—an adequate amount should form the daily routine. Electricity in its various forms has not proven a cure-all but in some cases may be of benefit.

There are no pathological findings characterizing this condition. As to prognosis, Berkley says, "Most cases make a partial or complete recovery in five years, and that it is surprising how few of these cases pass into the more serious mental states." It has been my observation, that most all of these people regain their physical and mental status to a greater or less extent. Some favorable cases perhaps make a permanent recovery. Evidently large numbers go through life partial or complete invalids, imbibing patent and other medicines, looking for a cure and an ever-ready victim for the charlatan and patent medicine vendor. There are others who presumably cross the border line of insanity, and are known in their homes as queer or eccentrical individuals, or else find a home in some retreat, and it would not be surprising, that not a few end their earthly career by their own hands. The neurasthenic in general terms is an interesting patient, and is at all times worthy of our profound consideration, both as to his physical and mental health.

MEDICAL PROGRESS.

MEDICINE.

Auscultatory Percussion.—A number of articles have appeared recently in German literature which tend to throw discredit upon auscultatory percussion as applied to the heart. Entirely faulty boundaries are obtained, it is assumed, and the varying tension of the skin will permit the percussion of heart-shaped figures even over other parts of the thorax. A. SMITH and J. HOFMANN (Münch. med. Woch., Dec. 15, 1903) assert that this is due to faulty technic. They have made hundreds of examinations and have controlled the accuracy of the method by means of the X-rays. Considerable experience is required as skin-tension must be carefully avoided; the stroking should be practised with a fine brush, or, better still, with a small drum which is rolled over the chest and to which a brush is attached. Various drugs, warm baths, etc., undoubtedly cause a change in the cardiac contours.

Albuminuria of Puberty.—It is not generally known that a large percentage of boys from fourteen to eighteen years of age suffer from albuminuria without having nephritis. F. LOMMEL (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 5 and 6) had the rare opportunity to examine repeatedly over 500 young employes of a large factory and discovered albumin in no less than 19 per cent. In most cases, only traces could be detected, though in a few the amount exceeded 1 pro mill. The greater part of the albumin seemed to consist of globulin as in acute nephritis, indicating the presence of wide meshes in the filtering apparatus of the kidney. The cause of the albuminuria, which generally had an intermittent character and was orthostatic in type was to be found in an impoverished condition of the blood, together with a mild degree of cardiac insufficiency and tendency to stasis, such as is liable to occur during puberty where the rapid growth of the body is out of proportion to the functional powers of the internal organs. In accord with this, dilatation of the heart, tension of the arteries and accentuation of the second aortic sound were frequently noted. The condition is readily outgrown, since it was not found in any of the men above twenty-five years old of the same factory. It is often difficult to distinguish from chronic interstitial nephritis, but the slight amount of albumin, the rare occurrence of casts of hyaline character and the distinct intermittent type speak against the latter. Moderate cardiac changes are of no value as they occur in both.

Osmotic Pressure of the Blood.—The osmotic pressure of the blood is a constant factor, expressed by a definite freezing-point and regulated by respiration, metabolic activity and renal excretion. Respiration removes carbon dioxide which normally lowers the freezing-point, and the kidneys excrete certain molecules which would have the same effect. A. LANDAU (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 5 and 6) has studied the congealing point of blood-serum under various conditions, in order to determine to what ex-

tent this may be looked upon as index of renal function. Unfortunately his results tend to minimize the practical importance of cryoscopy. It appears that food has little influence; thus, with a strict milk diet, normal figures were obtained, though the serum was considerably poorer in nitrogen than before. This nitrogen loss depended upon a deficiency of albumin; since albumin, however, consists of very large molecules, no variations in the freezing-point can be expected. After the use of thyroid tablets, the osmotic pressure became subnormal, due to reduction in chlorides, secondary to more active metabolism. In Bright's disease an increased osmotic pressure, manifesting itself in a freezing-point below —0.58° C. seems to point to a retention of excrementitious products, but normal figures indicate renal sufficiency only if the serum is not poorer in nitrogenous substances. Even in uremia and advanced nephritis, cryoscopy may give no clue as to the condition of the kidneys, since a dilution of serum occurs which compensates for any change. This fact will limit the usefulness of cryoscopy in surgery considerably, unless accompanied by a chemical examination of the serum. Occasionally the latter will also yield normal results in nephritis, but here the compensation is perfect. The influence of fever, as in typhoid, pneumonia, etc., is not constant, as the pressure may be normal, increased or diminished without any relation to the nature of the disease. In diabetes, the freezing-point was generally found subnormal, owing to the presence of glucose, acetone and diacetic acid in the serum. In pernicious anemia, the serum congealed at a somewhat higher temperature than normal, owing to larger amount of water present.

Gastroptosis.—A careful clinical study based on 28 cases of this condition has been made by J. D. STEELE and A. B. FRANCINE (Univ. Penn. Med. Bull., Dec., 1903). Their cases have been kept under observation for more than a year and their conclusions have been formulated in answer to two questions: To what extent is gastroptosis responsible for symptoms? and of what value is prolonged external mechanical support as a means of treatment? As regards the first they find that their cases naturally fall into two divisions, first those in which gastroptosis is a primary condition and those in which the gastroptosis is not the main factor in the morbid state. They find that certain cases are relieved so promptly by external mechanical support alone, without any other treatment beyond regulation of the diet, that the downward displacement of the pylorus must be regarded as the primary or at least the principal factor in the causation of the symptom complex. Cases of this character exhibited a moderate diminution of hydrochloric acid secretion, were free from organic disease, and showed no signs of dilatation or impaired motility. The symptoms were those of malnutrition, gastric fermentation, attacks of frontal headache, and sensations of dragging and lack of support in the abdomen. Gastroptosis may exist absolutely without symptoms. This is shown by the demonstration of downward displacement of the pylorus in the routine examination of other morbid states. Such patients were not benefited by external support, and recovered completely, although reexaminations showed that the stomach was still displaced. Gastroptosis may form part of the symptom complex of other morbid states, such as neuroses, gastric motor insufficiency and dilatation, and passive congestion of the stomach from weakness of the cardiac muscle. Here the downward displacement of the pylorus is also relieved by a mechanical support. The value of the mechanical support was not exerted in restoring the organ to its normal position as shown by repeated examination after the belt had worn for considerable periods of time. It apparently produced some change in the organ which enabled it successfully to perform its function, although displacement still existed. These changes were probably compensatory in character.

SURGERY.

Method of Suturing the Prolapsed Kidney.—The technic, which has been developed in this very important operation, may now with fairness be regarded as having reached a stable equilibrium. AUGUSTIN H. GOELET (Ann. of Surg., Dec., 1903) states that the essential points in determining success are as follows: (1) The colon must be completely detached from the kidney, so as to obviate subsequent dragging upon it. (2) Reattachment must be prevented. This is accomplished by packing a gauze drain beneath and in front of the kidney and by early evacuation of the bowels. (3) The sustaining sutures must be inserted under the fibrous capsule in a manner to obviate tearing or cutting through that structure when they are tied, and the suture material should be one that is permanent. The suture should not be tied to the muscles, but should be brought out upon the surface of the back. They should not be removed until sufficient time is allowed for firm attachment. (4) The kidney must be restored to its normal position, and should not be attached lower down where it may be compressed by the corsets or other clothing. (5) The detached redundant fatty capsule must not be permitted to come between the kidney and the structures to which it is to adhere. This may occur after closure of the wound, and is another indication for the packing of gauze around the lower pole of the kidney. (6) When both kidneys are operated upon, the patient must be kept strictly on her back during three weeks. When one has been sutured, she should be turned upon the affected side only. (7) The operation is indicated before the patient's health is seriously impaired and before the kidney has become diseased. A vertical incision is made through the skin to the first layer of muscles beginning just below the last rib and extending downward along the outer border of the erector spinæ muscle for 3½ inches. The latissimus dorsi is separated in the direction of its fibers. The fascia is next divided and the quadratus lumborum exposed. This is drawn inward. The transversalis fascia is next split downward by traction, which avoids wounding the iliohypogastric nerve and vessels. The fatty capsule bulges up into the wound. The kidney can now be located with the finger and delivered. The fatty capsule is opened with scissors and is completely detached from the kidney back to the hilum. The fibrous capsule is not split or detached from the kidney, nor is it scarified. Firm adhesion can invariably be secured if the kidney is held immovably in contact with opposing structures. To accomplish this, silkworm gut is a *sine qua non*. Two sustaining sutures are inserted upon the posterior aspect of the free border. These penetrate only beneath the fibrous capsule and are so placed that when traction is exercised upon them they will not tear out nor give way. The suture differs in several details from the Brodel stitch and is considered by the author vastly superior to it.

Temperature in Shock.—Any experimental work which elucidates this little known condition is welcome. GUY C. KINNAMAN (Ann. of Surg., Dec., 1903), from a long and extensive series of experiments, whose scope and number lend particular weight to his observations, concludes as follows: (1) Shock must not be considered as due to the lowering or exhaustion of one bodily function, but as a composite condition embracing an interference with the normal height of the blood pressure with the respiratory act and with a marked fall in the body temperature. That there is a relationship between

the fall in body temperature and shock is evident by considering (*a*) that in one series, the fall in temperature was the sole cause of shock; (*b*) that by continuous bath the temperature fell but one degree. The respirations increased, instead of diminishing, and the fall in blood pressure was greatly lessened. (*c*) That by raising the body temperature previously lowered in shock, the respiratory rate was increased and the blood pressure raised. Of the three factors concerned, the temperature commands the first place by its powers of production, limitation and amelioration of a composite condition—shock.

Excision of Forty-two Inches of Small Intestines for Chronic Intussusception.—Not because of the unusual length of gut resected, but on account of the failure of the Murphy button, which would have resulted more disastrously than it did, but for timely interference, is this case one of peculiar interest. F. C. WALLIS (Lancet, Dec. 5, 1903) operated upon a healthy married woman, aged thirty-two years. Previous to May, 1901, she had never been sick. She had never had diarrhea. Her illness began suddenly with a most acute pain in the abdomen, the cause of which she did not know. After a rest in bed there was subsidence of the intensity of the pain, but it was always excited by food thereafter. She described the attack as "a general turning round and round feeling in the stomach, followed quickly by vomiting." She had never passed blood or mucus, and she had about five of these attacks, the more serious ones lasting for about three weeks. At the time of operation, an indefinite mass was felt below and at the left of the umbilicus. The gut removed was all small intestine, and the two ends were united with Murphy's button, reinforcing sutures were put in in addition, every care being taken in the technic of inserting the button. Three weeks after the operation, the patient had an attack of pain similar to that which she had previously suffered from. Chloroform was administered and on palpating the abdomen, the button could plainly be felt in what seemed to be the descending colon. No button was passed and the pains continued. Three days later, under the X-rays, the button was seen to lie on the outer side of the right rectus. On the following day, the abdomen was reopened, and the button found four inches above the ileocecal valve. It was removed through a longitudinal incision. The button was somewhat larger than usual, it having been used because of the dilatation of the proximal portion of the gut. This is an interesting sidelight on the occasional failure of this most valuable device.

Treatment of Angiomata.—A simple method of treating this condition is suggested by CARL BECK (Jour. Am. Med. Ass'n, Dec. 26, 1903). He has used it successfully in a number of cases and the method consists in the general principle of transforming the masses of vessels gradually into connective tissue. This is done by a subcutaneous suture as follows: A thread of catgut is passed in a zigzag manner, first below the skin, then underneath the base of the tumor, then again underneath the skin, underneath the tumor, etc., until the tumor mass is included in this continuous suture. The latter is drawn tight and closed at the point of entrance of the needle. In this manner the circulation is shut off within the tumor but no gangrene follows, inasmuch as some blood can yet reach the parts not included in the suture. The mass soon grows smaller and the normal epidermis outside of these limits stretches considerably, but becomes elastic and grows again. This procedure is repeated until the tumor is diminished to the smallest possible nodule of connective tissue. The hard connective tissue masses are then excised and the edges carefully united. This treatment applies to all varieties of hemangioma, but in the arterial and mixed varieties it is necessary to ligate the largest afferent vessels in order to check the rapid growth. In one of the cases he reports being compelled to excise a portion of the common carotid artery.

Prophylaxis of Gastric Cancer.—An interesting contribution to this subject is made by W. A. KATZ (Deut. med. Woch., Vol. 29, No. 47). He calls attention to the fact that cancer is rarely found in that part of the digestive tract in which the chyme is of a soft consistency and believes that cancer would become much less frequent if the diet were restricted more to soft foods, as free as possible from solid substances. Thorough mastication should be insisted on, soft foods should be preferred and copious amounts of fluids taken when solid food is being eaten. The author thinks that by approximating the conditions in the stomach to those which exist in the duodenum, gastric cancer will become as much of a rarity as cancer of the small intestine.

Sterilization of Silk by Diffusion Currents.—It has been admitted that although water and alcohol have no disinfecting power alone, when one is added to an article impregnated with the other, the diffusion causes currents in and around the bacteria, which kill staphylococci in two minutes. J. AUSIN (Deut. med. Woch., Vol. 29, No. 46) has applied this principle to the sterilization of surgeon's silk. This is first boiled in alcohol, to remove all fat, impurities, etc. It is then set aside to dry and before an operation it is boiled in water for twenty minutes, then placed for five minutes in alcohol, then for five minutes in water and again in alcohol for twenty minutes. He has used this silk extensively and has not had a single case of stitch where it was employed.

Strangulated Meckel's Diverticulum.—An instance of this condition as a complication of typhoid fever and believed to be the only one on record, is reported by J. SAILER and C. H. FRAZIER (Univ. Penn. Med. Bull., Nov., 1903). At some time previous to the patient's present illness he had an attack of abdominal pain which was attributed to gall-stones. During the typhoid, symptoms developed which pointed to some acute trouble within the abdominal cavity in the region of the umbilicus. For these a laparotomy was done, when a strangulated Meckel's diverticulum was discovered. The latter was distended and twisted. The base was adherent to the parietal peritoneum. A ligature was thrown around the proximal end and the stump invaginated into the intestine. No perforation was found and the condition of the diverticulum probably accounted for all the symptoms. The patient died eighteen hours later as a result of peritonitis. The authors believe that at the time of the supposed attack of gall-stones a localized peritonitis occurred between the distal extremity of the diverticulum and the wall of the abdomen. Twisting of the former but without complete strangulation. During the typhoid the bacteria must have extended along the mucous membranes of the diverticulum, setting up an inflammatory process, which caused enough swelling to tighten the twists and produce complete strangulation, followed by an exacerbation of the inflammatory process.

Difficulties of Early Diagnosis of Peritonitis After Appendicitis.—There is no symptom, says L. MANSLAIRE (La Méd. Moderne, No. 35, 1903), that will inform us absolutely of the advent of peritonitis after appendicitis. Fever may be altogether absent, while chills are rare. The pulse is extremely unreliable, as it may be normal with pus in the peritoneal cavity, and much increased without this. The facies constitute an important sign but exceptions to the rule are frequent. A tendency to syncope and a change in voice have been mentioned but are altogether too indefinite to decide

so important a point. Of more importance are tympanites and inability to pass gas. The association of certain symptoms may be of some value; these are: changed facial expression, pains radiating toward navel, epigastrium or left and persisting despite the application of ice; dyspnea, restlessness, fall of temperature and a tendency to syncope.

Value of Blood-count in Appendicitis.—A severe criticism is carried by L. Rehn (Münch. med. Woch., Dec. 15, 1903) against the practice, becoming more and more common, of deciding upon operation in appendicitis, from the number of leucocytes in the blood. If it is certain or probable that the appendix is in an inflamed condition, it should be removed without delay. Daily blood-counts will never give a clue as to the true pathological condition and they may jeopardize the patient's life, as valuable time is lost. Curschmann, who inaugurated the practice, states that more than 25,000 leucocytes indicate pus but Rehn has found that a large abscess may be present both in early and in less recent, progressive cases, with much lower figures.

After-Treatment of Intranasal Operation.—The pain of these dressings so far exceeds that experienced in the primary operation that from the patient's standpoint a consideration of after-treatment is of great importance. Sir Felix Semon (Med. Press, Nov. 25, 1903) believes that tamponage, except in chosen cases, is apt to produce irritation, to cause local anemia of the injured parts and to prevent healing. A spray consisting of three grains of cocaine and half a dram of boric acid in six ounces of water was recommended for the reduction of inflammatory reaction. Tampons for the prevention of secondary hemorrhage are not valuable, since they do not prevent the occurrence of this accident when the tampon is removed the day after operation. In extensive wounds he introduces a strip of cyanide gauze soaked in peroxide. The patient should be directed to apply cold water compresses if bleeding occurs. Deep breathing with the closed mouth may also check hemorrhage. In general the author advises a let-alone policy, believing that the formation of cicatricial bands after operation is rare.

Diagnosis of Perforated Gastric Ulcer.—So many empirical rules have been laid down in this important matter that it is interesting to note how, with advance of our knowledge on the subject, little reliance can be placed in them. W. Harland Peake (Brit. Med. Jour., Nov. 21, 1903) says that for the general practitioner a knowledge of the indications, if any exist, of perforation, are of paramount importance. In considering the question of shock and collapse in association with pulse and temperature, he says that the so-called period of repose, which supervenes soon after perforation and in which the patient feels better, is a reasonably constant factor. Mitchell believes that the shock in these cases is due either to the presence of gas in the peritoneal cavity pressing upon the diaphragm and so upon the heart, or to the disturbance of the great sympathetic ganglia and peritoneum by stomach contents. In support of this theory he has shown that certain cases with a pulse of 140 dropped to 96 and became strong after the opening of the abdomen when the gas pressure was taken off. On the other hand, in cases where little gas was present, the opening of the peritoneum made but little difference to the pulse. Liver dulness is now generally looked upon as an uncertain sign, its absence being frequently due to colon resonance or to a dilated stomach. The paroxysmal pain may persist for as much as 4½ hours after operation. Osler states that early vomiting is a prominent feature. Flagge alleges that it is the earliest symptom of acute peritonitis. Robson says that vomiting with or without bleeding is an inconstant symptom. Finny finds it recorded in 40 per cent., Fenwick in 29 per cent. Clifford Allbutt says vomiting is generally absent or soon ceases if it occurs at first.

Fracture and Separation of the Lesser Trochanter.—A fracture of this character has hitherto either escaped diagnosis or has not been reported, according to Chas. Juillard (Arch. f. klin. Chir., Vol. 72, No. 1). His patient was an old man who sustained an injury which was believed to be a fracture of the neck of the femur. Death from inanition came on shortly afterward and on autopsy there was disclosed a complete separation of the lesser trochanter, together with the iliopsoas muscle. The neck of the femur was intact. The symptoms were localized pain, ecchymosis and swelling, but most marked was the outward rotation of the leg. The author believes that it is impossible to differentiate this variety of fracture from that of the neck of the femur without the assistance of the X-ray. The prognosis, which of course cannot be determined from this isolated case, should be similar to that of fractures of the neck of the femur. He considers that the rational treatment ought to consist of fixation of the thigh in an attitude of flexion and slight outward rotation.

Forensic Importance of Appendicitis.—The peculiar course of appendicitis and the sudden development of perforation with fatal issue due to peritonitis, explains why the disease occasionally plays an important part in legal medicine, according to D. Kister (Friedreich's Bl. f. gericht. Med., Vol. 54, No. 6). A perforation may occasionally lead to a suspicion of poisoning: it may be caused by a rise of abdominal pressure such as follows even slight muscular exertion, where the walls are thin and eroded. Not rarely a distinct relation to trauma exists, so that the question of criminal assault may be an important one, but it must be remembered that an appendicular lesion has always existed. The severity of the symptoms stands in no relation to the degree of force used. Perforation of the appendix in suicides is rare.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Primary Intestinal Tuberculosis.—Koch has recently made the statement that the intestines are very rarely affected primarily by tuberculosis and others have analyzed many cases and have come to the same conclusions. These conclusions are, however, erroneous according to O. Wagener (Münch. med. Woch., Dec. 1, 1903), since based upon the autopsies of adults. He examined the intestines and their mesentery of a large number of children who had died of some other disease and found tuberculous ulcers and cheesy mesenteric glands without other tuberculous foci in the body in as high as 21.1 per cent. In over three-fourths of these the specific stain for tubercle bacilli was positive so that there can be no doubt as to the nature of the lesion. In performing the autopsies, it is advisable not to sever the intestines from the mesentery, as small glands may be overlooked. Glands without ulceration in the intestines were never found.

Filariasis Cured by Removal of the Adult Worms by Operation.—This disease is extremely rare in this country and in Canada. A. Primrose (Brit. Med. Jour., Nov. 14, 1903) states that the embryo filariæ were first discovered in 1863. Bancroft found an adult worm in an abscess in a lymphatic gland of the arm in 1876. As early as 1877 Manson suspected the mosquito as playing the part of the intermediary host. In 1879 he demonstrated the life history of the parasite in the body of the mosquito. From further investigation it appears reasonably certain that the infection is communicated to man by the bite of the mosquito. On the west coast

of Africa, as many as 50 per cent. of the inhabitants are infected, but curiously enough it is rare to find these individuals ill. Nevertheless, occasionally the adult worms block the lymphatics. The embryo, too, may be responsible for these conditions, but under usual conditions they circulate freely in the blood and cause no disturbance of function. If, however, the parent worm be injured immature ova may be discharged in large quantities into the blood. They do not circulate as freely as the matured ova. They block the circulation and give rise to characteristic lesions. The case operated upon had the following history: It was that of a man forty-seven years of age, who had lived in Barbadoes all his life. In 1881, he was operated upon for what was thought to be hydrocele. Both sides of the scrotum were tapped and iodine injected. This apparently cured the condition. In 1884 he suddenly became seriously ill with fever and swelling of the leg. Two years later he had a similar attack. These attacks continued until the present date, but the period between them became progressively shorter. He had been infected for about twenty years. The scrotum was about three times the normal size, the amount of thickening being marked and permanent. The blood showed the characteristic signs of filariasis, one cover-slip alone showing 20 embryos. The specimens were withdrawn at night. The greater part of the indurated scrotum was removed, two lateral flaps of scrotal tissue being left. No ligatures were required. The wound healed without trouble. One parent worm, which looked like a piece of animated white thread about 6 cm. long was removed from the tissue. In salt solution it remained alive for some hours. Forty-six days after operation the patient developed elephantoid fever. A swelling developed in the neck which was incised and drained. Subsequent examination of the blood showed it to be absolutely free from infection six and a half months after operation.

New Reagent for Acids.—A reagent, appearing to be the most delicate as yet discovered for acids, is described by M. HEIDENHAIN (Münch. med. Woch., Nov. 24, 1903). It is the base of the aniline dye, nilblau, and is prepared from this by dissolving in alcohol and shaking with lime. The slightest trace of carbonic acid will at once turn this bright red fluorescing solution blue, and it is only necessary to blow gently upon its surface from a distance, to observe a beautiful play of colors. The atmospheric air, alcohol and even distilled water will be found to react acid with this base.

Etiology of Beriberi.—In the government asylum at Singapore the deaths from beriberi average 45 per annum, and the number of cases treated about 150. This was between 1887 and 1900. Since that date the disease has been nearly stamped out. W. G. ELLIS (Brit. Med. Jour., Nov. 14, 1903) states that by thorough cleansing and disinfection and the construction of two wards on the sea-beach four miles from the city, which have been used as isolation centers, the disorder has almost ceased to exist. The most important mediums used for disinfection are sea water, sand and sunshine. All the patients are bathed for at least half an hour daily and are kept out of doors all the time. They are freely massaged and are given strychnine, iron digitalis, and purgatives. All the patients are fed on Siamese rice. Thirteen years ago he separated 20 healthy native patients, giving them European food exclusively and no rice. In less than three months half the cases had developed beriberi. He then concluded that the disease was a place disease; that the soil and buildings were infected, and that this poison was the cause of beriberi. Siam rice is not the cause of the disease, as is shown by the fact that some time ago on a well-found steamer carrying 28 Malays and 51 Chinese hands, all of whom were fed on Siam rice, beriberi broke out among the Malays. Had the rice been in fault it is difficult to understand why the cases which broke out should all have been located in one cabin, as they were, and why the remaining 65 hands should all have entirely escaped. The conclusion is that rice has nothing whatsoever to do with the disorder and that it is purely of an infectious origin.

Elastic Tissue of Liver in Infectious Disease.—T. MIRONESCU (Virchow's Archiv, Vol. 174, No. 2) finds that in hepatic tuberculosis the elastic fibers may or may not be destroyed, depending on whether or not an exudative process is present. In hepatic syphilis there is a new-formation, in erysipelas a destruction of elastic fibers. In all other acute infectious diseases studied the changes were slight or absent.

Melanin and Glycogen in Melanotic Tumors.—In a number of non-melanotic malignant tumors, glycogen was found by D. HELMAN (Arch. internat. de Pharmacodyn. et de Therap., Vol. XII, fasc. III and IV) in such large amounts that the quantity could be readily estimated. A series of melanotic tumors was then examined with negative result. The amount of melanin was occasionally very high (7.3 per cent.), but the metastases often contained less than the primary tumor. The pigment does not seem to be constant in composition, for sometimes both iron and sulphur were present, while at others, only one of these elements. In general, four classes of pigment may be recognized, viz., physiological melanin, occurring in negro skin, the choroid and hair; pathological melanin of malignant tumors; artificial melanin resulting from the action of mineral acids on proteids and pseudomelanin, such as formalin pigment, the pigment of anthracosis and siderosis, etc. Microscopically the second class occurs in the form of amorphous, dark-brown granules, both in the cells and the connective tissue. The tumors are especially malignant and generally start from normally pigmented sites, though there are cases on record where the primary growth was free from pigment and the internal metastases rich in melanin. Some consider the tumor-cells epithelial in character, others believe them of endothelial origin and a marked difference of opinion also exists as to the relation of the pigment to hemaglobin. Since, however, dark granules often occur in the embryos of the lower animals and albumin can be converted into a dark mass by prolonged boiling, the presence of blood is probably not necessary. The pigment-formation is connected intimately with the functions of the suprarenal gland, which modifies the albumin so that it can be deposited as melanin in other parts of the body. The relation between glycogen and melanin is not clear but possibly the former enters into the molecule of the latter. Patients suffering from melanotic tumors often discharge a urine containing the mother-substance, melanogen and turning dark on exposure. Chloride of iron, bromine water and chromic acid will here give a black precipitate which does not, however, occur in all cases nor is it specific for melanotic tumors, since it is also found with ochronosis. Sodium nitroprussiate, potash lye and acetic acid often causes a blue discoloration which is still more inconstant. In the final stages of diabetes, the urine sometimes reacts positively, though melanotic tumors are not present. The melanin tests are of absolute value only where a melanotic tumor has been extirpated and melanuria persists or appears soon after, when a metastasis is certain. Melanin introduced subcutaneously is completely reduced by the organism, especially by the hepatic cells, so that it cannot be detected in the organs microscopically. For-

eign melanins, such as sepia and the coloring matter of peat, behave similarly. They are hardly toxic, except in very large doses, when convulsions appear in frogs and general asthenia in higher animals. Absorption does not take place from internal administration and injections are not necessarily followed by disappearance of glycogen from the liver.

Extra-uterine Malignant Deciduomata.—The history and pathological findings of the two cases observed by O. Busse (Virchow's Archiv, Vol. 174, No. 2) are interesting in that they prove that malignant deciduomata may also occur in places other than the uterus. The first patient was seized two weeks before death with severe headache, gastric symptoms, lassitude and cardiac pain and coma; involuntary discharge of urine and feces and facial paresis soon followed and one-half of the body became anesthetic and the seat of peculiar vasomotor disturbances. This vague symptom-complex was only cleared up at autopsy when it was found that both small and large vessels of the brain were completely occluded by emboli of varying date which had caused extensive softening of cerebral tissue. The cause of the emboli was a large tumor situated in the left ventricle of the heart which was made up of elements found only in malignant deciduoma. While most other organs were also riddled with metastases, the uterus was entirely free from pathological lesions so that the cardiac tumor must be looked upon as primary. The case is difficult of explanation but since there was a history of pregnancy five months before the onset of the illness, it is possible that portions of the placenta were torn off and carried to the heart where they were arrested by the slowing of the blood-current due to a beginning syphilitic myocarditis. In the second patient the malignant deciduoma had developed in the right parametrium and posterior wall of the vagina; the uterus was also free. At present, only sixteen cases of extra-uterine deciduomata are reported in literature; in most the primary tumor was seated in the vagina and metastases had formed in the lungs and brain. The mucous membrane of the uterus frequently swells like in extra-uterine pregnancy, but it is difficult to say if this depends upon chemical or reflex influences. The author does not share the common belief that metastases may disappear after extirpation of the primary tumor.

Tumors of Gärtner's Canal.—In the lower part of the cervix uteri, Gartner's canal possesses a dilated portion which begins to branch in the later fetal months. This portion is homologous to the male ampulla of the vas deferens but never possesses a pouch corresponding to the seminal vesicles. The difference in form between male and female ampulla is probably due only to mechanical causes since the firm cervical tissue restricts development. The most common tumors, according to R. Meyer (Virchow's Archiv, Vol. 174, No. 2) are adenomatous in character, taking the form of small, narrow canals and vesicles at the ends of the lateral twigs. They may be present at birth and are generally without significance. Most cases of cervical adenomata which do not start from the mucous membrane, belong to this class. Occasionally the surrounding tissue participates and the tumor has more the character of an adenomyoma. Malignant tumors are exceedingly rare; in fact the author's case is the first instance of carcinoma on record.

Nature of Blood-Plates.—When fresh blood is allowed to mix with concentrated solution of corrosive sublimate, the red corpuscles will develop a number of protuberances which closely resemble blood-plates and are by many considered identical with these. P. Schneider (Virchow's Archiv, Vol. 174, No. 2) concedes that both structures are very similar in morphology and in their relation to certain dyes, yet the plates cannot be looked upon as forming from the erythrocytes, since the former are not affected by 5 per cent. acetic acid, while the latter readily dissolve. The plates consist almost entirely of nuclear substance, while the red cells contain only traces of this in their stroma. It is still possible, however, that physiologically certain portions of the erythrocyte are extended and then undergo chemical changes, so that the experiments are not conclusive. Ameboid movements and nuclear substance do not absolutely prove the independent cellular nature since cell-extensions may develop both.

A Rapid Method of Imbedding and Hardening.—The modification of the Lubarsch method proposed by A. Stein (Deut. med. Woch., Vol. 29, No. 44) is as follows: The tissue is placed for five minutes in 10 per cent. formalin, for the same time in 95 per cent. alcohol, then ten minutes in absolute alcohol changed once, finally fifteen to twenty minutes in anilin oil until entirely cleared. These procedures are done in the incubator at a temperature of about 50° C., which is now increased to about 60° C., while the specimen is placed in xylol for 15 minutes, changing the fluid several times, and finally in paraffin for ten to thirty minutes. The entire process takes less than 1½ hours. It is applicable to sections not more than 3 mm. thick.

A New Cervical Dilator.—One of the chief criticisms to be made of the Bossi dilator is that its mechanism is very complicated and so many levers and screws are necessary in its construction that it is practically impossible to take it apart for cleaning. F. A. Higgins (Jour. Am. Med. Ass'n, Nov. 28, 1903) has devised an instrument which it is claimed overcomes these objections but yet retains one of the best features of Bossi's instrument, the removable tips. This admits of an instrument with a small point for use at the beginning of dilation. The dilator in question has five blades, the tips of which are made to spread by an advancing cone moved by a screw and a handle. The parts are limited in number and can be readily separated for cleansing purposes. The reason for using five arms is, that in this way the pressure is better distributed, no two arms coming directly opposite to each other. It may be necessary to precede the use of this instrument by the introduction of a moderately sized Hanks dilator and aside from its employment in obstetrics he has also found it of value for dilatation for curettage.

Action of Diphtheria Toxin upon Circulation.—According to K. R. v. Stejskal (Zeitsch. f. klin. Med., Vol. 51, Nos. 1 and 2) the poison of diphtheria acts upon the vessels as well as the heart. With the latter there is first an irritation and then a paralysis and general disturbance of the nervous mechanism; with the former a decrease in tensions developing to a complete paralysis, takes place. Both actions are simultaneous and independent of each other. The period of latency and degree of toxicity depend upon the size of the dose and also upon the individual resistance of the animal. If an animal is in poor condition, a normally non-toxic dose, will readily kill. The vasomotor paralysis will only react upon the heart to a slight degree in that the coronary vessels are less filled with blood; the anemia of the respiratory center is, however, of more important consequence than that of the heart muscle.

Long Bacilli of Gastric Cancer.—If the stomach-contents of cases of carcinoma of the stomach be examined, the characteristic long bacilli will often be found in nearly pure cultures. This G. Sandberg (Zeitsch. f. klin. Med., Vol. 51, Nos. 1 and 2) attributes to a special resistance of the germ toward high percentages of lactic acid, which inhibit the growth or destroy all the other organisms in the stomach except yeast. When grown on acid-free media, short rods are

usually obtained, but as soon as other lactic acid producing bacilli are present or they themselves are able to produce lactic acid, then length increases materially. Both long and short forms give characteristic colonies, but one may be changed into the other by modifying the conditions of growth and transition forms are common.

OBSTETRICS AND GYNECOLOGY.

Extra-uterine (Ovarian) Pregnancy.—Of the extra-uterine pregnancies those of the ovarian variety are comparatively rare, and Schrenck found in 610 cases of extra-uterine pregnancy but 4.6 per cent. of ovarian cases. G. I. OLECHNO (Roussky Vrach, Oct. 25, 1903) describes an interesting case of a woman, a primipara, aged twenty-five years, who asked for admission to the hospital because of a severe hemorrhage of three weeks' duration. Examination of the abdomen elicited a somewhat tender swelling, the dimensions of which could not be clearly made out on account of the woman's greatly developed adiposity. The uterus was in its normal position, and the size of a lemon, soft, and admitting freely a sound for 14 cm. The tubes were felt slightly enlarged; to the left and behind the uterus was a movable, slightly tender swelling, the size of the fist. A diagnosis of extra-uterine pregnancy was made, and a laparotomy was performed. A dark-red tumor, somewhat adherent to the broad ligament, was found in Douglas' cul-de-sac. The left tube was seen at its entire length, its fimbriated extremity grown to the antero-superior portion of the swelling. This last was separated from the surrounding adhesions and removed. As the right tube was also found to have undergone some changes, part of it was excised, the cul-de-sac was cleared of the clots, the wound closed, and a sterilized tampon placed in the vagina. Recovery was uneventful. The tumor contained a fetus with clearly demonstrable extremities. Its upper wall contained a hard body, which in its consistence and form felt like an ovary. The ovarian ligaments were not evident. With the pregnancy there was also a right hematosalpinx which escaped the notice of the examiner before the operation.

The Physical Chemistry of the Blood in Pregnancy, Parturition and Puerperium.—During pregnancy there is a rise in the freezing-point of the serum, according to G. FARKAS and E. SCIPIADES (Pflüger's Archiv, Sept. 8, 1903), which indicates a decline of molecular concentration. Following labor the serum reaches or exceeds the normal average concentration. During the above three periods the electric conductivity of the serum is subject to no variation, which indicates a uniformity in the concentration of the electrolytes. Toward the end of pregnancy and during parturition the concentration of the non-electrolytes, excepting albumin, which corresponds to the organic non-albuminous constituents, suffers a reduction. The content of albumin and chlorine show no change. The authors find that the amniotic fluid is a hypotonic fluid containing traces of albumin, and is no simple transudate of the blood.

Fibromata of the Anterior Abdominal Wall.—Two kinds of tumors are usually encountered in the anterior abdominal wall, solid and cyst-like. But in general these swelling are rather rare, and especially so the fibromata; even very active surgeons can boast of having met but few of these. As an example M. N. POROSHIN (Roussky Vrach, Oct. 4, 1903) cites such a celebrity as Billroth, who, during a most prolific practice of twenty-three years in Zürich and Bern, altogether saw between 15 and 20 cases of tumors of the anterior abdominal wall. The case reported by the author was that of a peasant woman, of twenty-eight years, who had the tumor in the abdominal wall for the last seven months. The swelling began to grow rapidly, especially since patient became pregnant; she aborted on the fourth month. A laparotomy was performed, and a tumor weighing 500 grms. and of soft consistency was removed. Microscopically it proved to be a soft fibroma, which is also known as a dermoid tumor.

Pelvic Exudations.—More than 80 per cent. of these cases are due to childbirth, according to the statements of E. C. CARMICHAEL (Brit. Jour. of Obstet., Sept., 1903), and the remaining cases result from surgical operation. Exudations are most common in the lateral parametria, more especially the left, but are liable to spread to and involve the other parametria, showing a tendency to limitations along certain lines as some anatomical observations might not lead us to suppose. The majority of the cases no longer suffer from fever when they are admitted to the hospital, and the presence or absence of this symptom is not a definite indication of the appearance of suppuration. The presence of a leucocytosis affords us a more reliable means of diagnosis as to the presence of pus, and if the leucocytes steadily increase, on repeated examination, and especially if they reach the number of 20,000, or over, surgical interference is justifiable. The majority of pelvic inflammations are cured by absorption or by suppuration. The most frequent cause of suppuration is the *Streptococcus pyogenes*. The hot air treatment has proved a very valuable addition to the treatment of this condition, more especially in large and chronic exudations, or in those patients where pain and discomfort result from cicatrices and thickening in the parametria, the remains of former inflammatory exudates. The chief contraindications to this treatment are fever, menstruation, and heart disease.

Müller's Operation for Uterine Prolapse.—Briefly stated, colpectomy, as described by Peter Müller, consists in excising the whole vagina and columnizing its bed, but—and this is the original feature in the operation—leaving the uterus behind intact. The idea, says R. P. KÖNIG (Brit. Jour. of Obstet., Sept., 1903), is to form compact cicatricial tissue in place of the vagina, on top of which the uterus is firmly imbedded, in its normal situation. Colpectomy can be done without general anesthetics in the vagina, being rendered insensible by Schleich's infiltration. The whole operation may be performed in ten or fifteen minutes. Müller advises that the older women be permitted to get out of bed as early as the fourth day to avoid any possibility from hyperstasis. The results of the operation are excellent. The author had not seen or heard of a relapse. The advantages of the operation are obvious: (1) The peritoneum is not opened, neither the bladder nor rectum is at any time endangered. There is very little traumatism and that not sufficient to produce shock. This then gives the maximum of safety. (2) It is a simple operation, the technic is not difficult, and the time consumed in performing the operation is short. (3) Anesthetics may be dispensed with. (4) Rest in bed for a few days is all that is necessary. (5) Recurrence is impossible.

Diabetes as Complication of Pregnancy.—A résumé of the cases in which this condition developed during pregnancy has been made by ALFRED STENGEL (Univ. Penn. Med. Bull., Oct., 1903), who also reports a case seen by himself. He has been able to collect 19 undoubted cases, with the diabetes present 27 times. It may have its onset in the first or in subsequent pregnancies. There seems to be a tendency to recurrence of the condition when it has been once established and the onset is apt to be early in the pregnancy. The symptoms are about the same as those in ordinary diabetes, the conspicuous ones being polyuria, increased appetite and thirst, weakness, loss of weight, boils and pruritus vulvæ. The author believes that the serious aspect of the prognosis has been magnified—among these cases 13 preg-

nancies terminated normally as far as the child was concerned, the remainder being miscarriages or dead fetuses. The maternal results show that in 27 pregnancies 17 terminated in normal recovery of the mother, in 5 death occurred soon after labor, and in the remaining 5 death occurred from diabetes or other causes within some weeks or months after the delivery.

Embryotomy as Applied in Transverse Dystocia.—A method which is applicable in cases where the neck cannot be reached, and therefore decapitation is impossible, is proposed by L. A. Herring (Medicine, Nov., 1903). He has used it with success in those cases where the shoulders lie deeply, the trunk is impacted and uterine rupture is imminent. The instruments required are a few bullet forceps, volsella, and a strong, straight episiotomy scissors. The fetal thorax is seized with two forceps placed side by side as it presents at the uterine orifice—if the arm is prolapsed or is in the way it may at once be amputated at the shoulder. The thorax is now opened in one of the intercostal spaces between the applied forceps and the latter reapplied so as to include the entire thickness of the wall. After enlarging the opening thus made, the heart and lungs are seized with a volsellum and removed by a twisting motion. The lateral incision is then carried backward until the spinal column is reached and cut through with the scissors. The hollow body of the fetus can now be made to sink downward so that all further manipulations may be made in the vagina. The entire thorax can now be cut through and then the two parts of the fetus may be readily extracted—first, the upper half and then the lower. The author claims that the procedure is not difficult and does not require any great amount of skill, and among the advantages is the fact that the hand need not be introduced into the overdistended cervix and add to the danger of uterine rupture. Moreover, when rupture is threatened, evisceration, according to the technic given, can be accomplished with much less intra-uterine manipulation than can version followed by extraction, there is no remaining head to consider after removing the trunk, as in decapitation, and owing to the exhausted condition of the patient, anesthesia can be dispensed with.

Volvulus in Pregnancy.—In case of sudden collapse during parturition, one must not lose sight of the possibility of volvulus. Where the ascending colon has an abnormally long mesocolon, this part of the intestine will often be displaced upward by the growing uterus. With the first pains the uterus will become erect and will cause the transverse colon to fall over the ascending portion. In the patient of F. Fromme (Münch. med. Woch., Oct. 20, 1903) the collapse was so sudden in onset that death set in shortly after forcible delivery.

Puerperal Streptococcus Infection.—The question as to whether the streptococci obtained from the genital tracts of pregnant and non-pregnant women are capable of producing septic infection during the puerperium, is still in abeyance. A confirmation of the view that the streptococci obtained by culture from the vagina and those from the blood of a patient with puerperal fever, are the same, might be obtained if both varieties showed similar behavior in cultural and animal experiments. A. Rielander (Zeitschr. f. Geb. u. Gyn., Vol. 49, No. 3) obtained cultures from two cases of puerperal infection after abortion and found that even large doses injected into animals manifested a very slight degree of virulence. Both patients were very ill, however, and in one case the woman died. In their cultural and morphological relations the species seemed to be the ordinary *Streptococcus longus*. These experiments prove that the streptococci found in the vagina, which are apparently harmless and do not produce pathological changes in animals, may under certain circumstances, at present unknown, result in severe infection of the human organism. This change may be due to growth with other bacterial varieties or to change in the soil on which they grow that offers a more favorable culture medium for the development of increased virulence.

The Mechanism of Posterior Occipital Positions.—The following is the mechanism thought to take place in these cases by W. B. Gossett (Am. Jour. of Obstet., Oct., 1903). In the R. O. P. position the occiput is directed toward the right sacro-iliac synchondrosis, the forehead toward the left acetabulum, the occipitofrontal diameter offering in the right oblique of the pelvis. The occipitofrontal diameter being longer than the right oblique of the pelvis, there is first flexion to allow the head to enter the brim, substituting the suboccipitobregmatic diameter of the head for the occipitofrontal. The force of the uterine contraction is transmitted through the vertebral column to the short pole of the fetal head, the occiput, so produces more flexion of the head. The head descends and the occiput, being the most dependent part meets the resistance of the pyriformis muscle and the soft parts as soon as it enters the brim. This resistance in the great majority of the cases (about 96 per cent.) starts the rotation of the occiput to the front, it rotating away from the point of resistance to that part of the pelvis where it has the least resistance, that is to the right and forward. This is the beginning of the second step of labor in R. O. P. position with a favorable termination, that is the rotation of the occiput through three-eighths of a circle to the front. The resistance of the pyriformis muscle and soft parts is sufficient to cause the occiput to fall in front of the dividing line of the two inclined planes that is a line drawn from the tip of the ischium to the ileopectineal eminence, and in front of the spine, so the resistance of the tip is back of the occiput, and the occiput rotates along the right anterior inclined plane and under the symphysis. If the resistance of the pyriformis muscle and soft parts is not sufficient to start the rotation of the occiput to the front, then the occiput will pass on down and fall behind the ischial spine and onto the right posterior inclined plane, following its direction, which is downward, backward and inward, to the hollow of the sacrum. The author does not believe that the occiput ever rotates forward after it passes posteriorly to the spine of the ischium. After it gets back of the spine it is hard to understand how it will rotate beneath the spine and to the front, or what will cause this rotation.

Treatment of Perineal Lacerations.—K. Hegar (Münch. med. Woch., Nov. 3, 1903) speaks strongly against the firmly-rooted custom of suturing tears at once or soon after the termination of labor. An analysis of a large number of cases proves that post-partum fever is more common in these cases and removal of the stitches will often be followed by a rapid fall of temperature. Waiting twenty-four hours is still worse since the lochia are more infectious and the patient is disturbed in her much-needed rest. It is not commonly known that the functional results are excellent in 77 per cent. of the cases where healing is left solely to nature. Sometimes the wound-edges are not accurately opposed, leading to slight distortion which does not interfere in any way. Suturing may, however, be done where the wound is simple and without contusion or infiltration, where the general condition is good and strict asepsis can be practiced. In other cases it is better to wait three months.

Pernicious Vomiting.—This is fortunately a rare complication of pregnancy, says Robert Jardine (Brit. Jour. of Obstet., Oct., 1903). Many theories as to the causation of pernicious vomiting of pregnancy have

been propounded, but the etiology of the condition is still very obscure. The displacement theory of Graily Hewett has never recommended itself to the author. Many cases of displacement of the uterus have come under the author's observation where there had never been the slightest vomiting during the whole of the period of the pregnancy. The author is becoming more and more convinced that the true cause is a toxic one, and the poison, whatever it is, acts through the nervous system. The cause surely lies in the uterine contents as the sickness disappears as soon as the uterus is cleaned out. When once thoroughly understood, the tissue metabolism that occurs during gestation, the etiology of pernicious vomiting and of eclampsia will in all probability be made clear. In the treatment of the condition, medicinal means should have a fair trial. Rectal feeding is certainly of great use. When everything is rejected, rectal feeding should be given for ten days or a fortnight. To relieve the thirst, saline injections, given high up in the bowel, or subcutaneously are of great assistance. If the condition is a toxic one saline injections should be useful. After the stomach has had a thorough rest for a fortnight, small quantities should be tried by the mouth. If this is rejected, one must then seriously consider the advisability of emptying the uterus; to delay until the patient is exhausted, is merely to court disaster.

Native Obstetrical Practice in China.—Obstetrical practice is mainly in the hands of ignorant and dirty midwives and nearly every case one meets in practice has been mismanaged by the attendant. Gynecology is on the other hand, undertaken by the native medical man, who is, according to the European ideas, merely a quack. The Chinese do not require their doctors to qualify or take a degree, and often they are quite illiterate men. It is needless to say, remarks AGNES COUSINS (Brit. Jour. of Obstet., Oct., 1903), that vaginal examinations are never made by the native doctors, and the hopelessness of treatment is further increased by the seclusion of the patient. Diagnosis is often made by the pulse, of which the Chinese aver that there are six at the wrist. The midwives are usually of the very lowest class, so much so that the descendants of a woman engaged in this work are not permitted to take a degree, and are therefore debarred from taking office for three generations. A practice is often handed down from mother to daughter and so on. Ordinary cleanliness is unthought of. Puerperal fever is common. The months of pregnancy are usually reckoned as ten by the Chinese. The mother takes no special care during this time and abortions and miscarriages are very common. They do not retire to bed at such times, consequently the hemorrhage is sometimes alarming. If the patient grows faint with it the friends will put her to bed but prop her up, so that the poor woman is made to sit as nearly upright as possible to prevent the discharge gravitating upward to the heart. Treatment is to give native hemostatic, purgatives, or apply counter-irritation to the abdomen. As labor advances, the patient is usually propped up in a squatting position with the buttocks resting just on the edge of a bed or chair (which are always low), her thighs are supported on the knees of two women sitting on either side, and often her arms rest on their shoulders. A third woman from the rear puts her arms on the patient's abdomen, and with the pains makes pressure downward and backward in an effort to express the child. Meanwhile on the floor, and between the patient's knees, which are widely separated, is a stool and on it a receiving bath, in front of which the midwife kneels. She endeavors to stretch the vagina by inserting her fingers and pulling the walls apart, much in the same way that one dilates the sphincter ani with the thumbs before operating for hemorrhoids. If there is delay at the outlet, native drugs are given to cause relaxation of the perineal structures. Sometimes, however, they apply counter-irritation to the vestibule and clitoris instead of giving drugs. This is done either by selecting a sharp fragment of a broken basin, and using it to scarify the part, or by inserting red hot needles. Very few of the women suffer from varicosity of the veins. Owing to the practice of binding the feet the lower extremities are poorly developed, and probably the blood supply to the parts is small. There are among the midwives and native practitioners those who venture a crude embryotomy. Rupture of the uterus is by no means uncommon, neither is it always fatal. As a rule, as soon as the labor is over the patient lies down in bed, but with the head and shoulders bolstered up very high, this with the idea of quickly draining away the lochia. The patient is given a drink of syrup, often with hard-boiled eggs floating in it—a dreadful decoction, of which all friends and visitors are expected to partake. The women often sit up on the day following delivery.

Abdominal Hysterectomy.—In setting forth the advantages of bisection for removal of the uterus in almost all conditions where total ablation of the uterus is indicated, H. A. KELLY (Brit. Jour. of Obstet., Oct., 1903) gives the following advantages of his method of operating: (1) By shortening the period of enucleation, and so bringing the operation to the point of closing the peritoneal and abdominal wounds; (2) by the newer methods, the great uterine vessels, whose control constitutes the chief step of the operation, are promptly secured, and thus any dangerous hemorrhage avoided; (3) by the removal of the uterus, abundant room is afforded to deal with the adherent tubes and ovaries; (4) abundant light is also shed upon the field of operation, and every step can be followed in all its minuter details; (5) new avenues are opened up for releasing the adherent structures from below, from the front or behind, instead of simply working from above as formerly; (16) it is also possible, with greater precision and security, to pack off the diseased structures, sequestrating them from the general abdominal cavity.

Retroversion in the Gravid Uterus as a Cause of Acute Cystitis.—Instances of backward displacement of the gravid uterus are numerous, and there is seldom any difficulty in dealing with this complication. From a clinical standpoint, M. HANDFIELD-JONES (Brit. Jour. of Obstet., Oct., 1903) holds that the cases one sees in private practice may be divided into two groups: (1) Those cases which are serious and urgent and where symptoms present themselves suddenly and (2) cases in which pressure symptoms, due to incarceration of the growing uterus slowly and gradually manifest themselves. There is comparatively little opportunity of a mistake arising in either diagnosis or treatment in the first class of cases, but in the second group there is a much greater likelihood of complications arising, since the patient may be slow to appreciate the gravity of her symptoms, owing to the gradual way in which they have developed, and secondly, the doctor, may look upon the case with less anxiety, because there has been at no time an alarming onset of symptoms.

Diseases Cured by Stem Pessaries.—Thirty years ago we occasionally used stem pessaries for the cure of retrodisplacements but in the course of time, they were discarded because of the danger in their indiscriminate use. J. H. CARSTENS (Am. Jour. of Obstet., Nov., 1903) believes that there is still a field of usefulness that this instrument can enter with safety. In cases of infantile uteri it has proven to be of use in the stimulation of this organ to greater development. The

theory advanced by the author is, the uterus is stimulated and congestion produced and also that the nutrition of the whole pelvis is thereby benefited. The muscles of the uterus are exercised just as those in any part of the body are by the constant effort of the uterus to expel the pessary. Thus the uterus is enlarged and at the same time, it is straightened and the menstrual flow is permitted to pass out unobstructed from the body of the uterus. The greatest trouble is to keep the pessary in the uterus. And for this the author advises the use of the Chapman pessary, made of hard rubber, which can be easily sterilized by boiling. The author takes his patient to the hospital and prepares her as for any other operation. The pessary is introduced, and the patient is kept in bed for one or two days. Then he allows her to get up and walk around, and in three or four days she can leave the hospital and attend to her usual vocation. No after-treatment is necessary, not even hot douches. The author recommends this plan of treatment in the following kinds of cases: (1) Infantile and poorly developed uteri; (2) amenorrhea; (3) scant or irregular menstruation, as is found in fleshy women; (4) simple cases of retroversion, as is found in young girls; (5) cases of stenosis or tortuous uterine canal; (6) the stem must be worn at least six months. A year or even two years is better. If at any time irritation is produced, the pessary can easily be removed.

THERAPEUTICS.

Use of Atropine in Incarcerated Hernias.—D. HAGEN (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 5 and 6) has discovered that the physiological activity of atropine will readily explain the efficiency of this drug in incarcerated hernias, if the pathology of these be considered. In every incarceration there is a paresis of the musculature of the intestinal loop, accompanied by a reflex tetanic irritation of the external oblique muscle. Since atropine first stimulates muscles supplied by sympathetic nerves, it will tend to overcome the paresis; its subsequent paralyzing action will then be directed against the tetanus of the abdominal muscle. The author proceeds as follows: Half a cubic centimeter of a 1-1,000 solution of atropine sulphate is injected into the neighborhood of the hernia; if this is effective, the dose is repeated every hour; if not, double the dose is injected and a gentle attempt at taxis is made. After six to eight hours a laparotomy is indicated if vomiting continues, and the pulse and facial expression do not improve. It will be possible to save many patients from operation and the method demands an extensive trial, especially in the aged, where the mortality is unusually high.

Bismutose as an Intestinal Astringent.—The value of this preparation is commented on by P. COHNHEIM (Berl. klin. Woch., Dec. 28, 1903). He has used it in a large number of cases of catarrhal intestinal conditions, and finds that although in chronic cases it does not produce a cure, it effectually relieves the distressing symptoms. It is of particular value in the chronic diarrheas of adults, especially in alcoholics, where he has given it in doses of one-half to an entire teaspoonful three times daily after meals. This should be continued for at least four weeks, together with proper regulation of the diet.

Linseed Poisoning.—The following symptoms were produced in a patient who was a robust man, healthy to all appearances, save for a strangulated hemorrhoid. J. O. HOLLICK (Lancet, Nov. 21, 1903) reports that a hot linseed meal poultice was applied to the part at 3 P.M. At 7 P.M. the patient's mouth and throat felt as though they were lined with velvet, the skin of the hands and feet felt as though they were covered with scales. Anserine appeared all over the body, the color of the skin changing from normal to red or purple. There was a rush of blood to the head, the hearing was affected, and the patient was unable to see well; the heart ran up to 120 a minute, the chest seemed to the patient to be tightly constricted. After three-quarters of an hour of these symptoms an acute attack of diarrhea intervened. The patient vomited a quantity of dark material, although he had taken nothing but milk for forty-eight hours. After this the symptoms gradually passed off. On two previous occasions he had been poisoned by linseed, once after eating 12 of the seeds and again after eating lozenges of linseed and licorice. The ordinary linseed meal is obtained by expressing the oil from the seeds and powdering the remains.

Carbonate of Creosote in Pneumonia.—In the hands of J. A. SCOTT and C. M. MONTGOMERY (Therap. Gaz., Dec. 15, 1903) carbonate of creosote in pneumonia caused no irritability of the stomach and no disturbance of the urine. The degree of toxemia in all cases barring the fatal ones was mild and pseudocrises were common, but bore no relation to the crisis or the mortality. The mortality in 67 cases was 14.9 per cent., which does not corroborate the unusually low figures obtained by others, especially since equally low figures were obtained in the same hospital with other methods of treatment. The study of the clinical effects of carbonate of creosote should be continued, the dosage should be increased and the effect upon the toxemia carefully watched.

Serum Treatment of Arteriosclerosis.—The serum of Trunecek, a solution of various mineral salts in water, has given excellent results in the hands of D. SCHEFFLER (La Méd. Moderne, Dec. 23, 1903). When injected hypodermically or into the muscles, a fall of blood-pressure, amounting to 2 to 7 cm., was generally noticed, though the anatomical lesions of arteriosclerosis were hardly affected, even after prolonged use. The most gratifying results were obtained in the functional and subjective complaints of arteriosclerosis and neurasthenia, such as insomnia, dyspnea, pruritus, vertigo, and neuralgia. In chronic rheumatism, on the other hand, no improvement was noted. Success was also experienced in certain urinary and sexual derangements. Where an amelioration was brought about this was lasting in most cases, and in many even permanent. One cubic centimeter should be injected every day.

Properties of Fluorescing Substances.—If strongly fluorescing substances, such as akredin, eosin and quinine, are allowed to act upon lower organisms in the presence of light, they will manifest strong bactericidal properties. Similarly the action of ferments is inhibited and toxins, such as ricin, will lose their power to agglutinate red blood corpuscles. These phenomena are not observed in the dark or if the rays causing fluorescence are cut off. In order to determine any possible therapeutical value, H. v. TAPPEINER and D. JESIONEK (Münch. med. Woch., Nov. 24, 1903) applied eosin to three cases of epithelioma of the face and then exposed the ulcerations to the sunlight. In two, cicatrization was complete in fifty to sixty days, and in the third, an extremely malignant growth, which had destroyed almost the entire nose, healthy granulations were beginning to form. Equally good results were obtained in lupus, scrofuloderma and syphilitic affections of skin and mucous membranes, such as broad condylomata. The action is most intense where the diseased tissue lies exposed, but sometimes the action of light will set up an erythema which hastens ulceration and thus allows the eosin to act directly. Experiments on subcutaneous and oral use of eosin are in progress.

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SURGICAL TREATMENT OF SPLENIC DISEASES.

ACUTE hemorrhage from the stomach suggests the existence of gastric ulcer. In a large percentage of cases this supposition is substantiated by operation or by autopsy. In a very small proportion, however, it has been shown that the bleeding had been secondary to disease of the spleen.

To this latter class of cases Banti has given particular attention and writers have coupled his name with the train of symptoms which he has described. Others have preferred to call the disorder "primitive splenomegaly associated with hepatic cirrhosis."

In addition to these terms, several others have been employed in naming esoteric splenic diseases. Banti himself has applied to the special class of symptoms which he has isolated, the term "splenic anemia." Gaucher refers to the same malady as "idiopathic hypertrophy of the spleen;" De Bove as "hypertrophy of the spleen without leucemia." Osler states that "the question of the existence of a separate malady—'anemia splenica'—is still in what might be called the inquisition or tentative stage." Sippy speaks of the condition as "splenic pseudoleucemia." In fine, Douglas laments that the subject is "befogged with a manifold nomenclature."

Fog certainly does exist and an exact nomenclature is a desideratum. The multiplicity of names employed for this simple series of symptoms does, however, show one thing with great clearness: it is that there is great activity in the study of splenic lesions. And yet, notwithstanding this activity, confessedly little is known about such lesions save that if left alone they kill. The hope of the mystified practitioner must be that shortly out of this pathological chaos a therapeutic cosmos will be evolved so that cases shall be brought within the reach of remedy, which now progress not alone untreated but actually unrecognized to a fatal end.

This goal is, however, by no means in sight; the knowledge necessary to attain it is not yet in our possession. How very little, for example, is known of this so-called "Banti's disease" this "symptom complex" which is one of the very important esolienic lesions. While it is possible that the characteristic symptoms—the anemia, the gastric and enteric hemorrhages, the hepatic and splenic enlargements, may be correctly traced to some form of toxemia, or, perhaps, as Barr has suggested, to a vasomotor paresis of the splanchnic area, the fact remains that the etiology of the disease is unknown. Until adequate light shall replace this darkness so that we have definite understanding of the nature of the disorder, it is obvious that no revolutionary medical agent can be suggested. We must, for the time being, depend on the surgical methods hitherto adopted, crude and empirical though they may be.

The surgery of the spleen occupies a place approaching in importance that of the pancreas and the gall-bladder. Chas. G. Levison, in an article on "Splenectomy for Banti's Disease," in the November *Annals of Surgery*, states that in the past decade splenic surgery has made great strides. He quotes from Hargen's monograph, which shows that in eighty-four cases of extirpation of the spleen for chronic malaria there were but seven deaths, or less than 8 per cent. The malaria incidentally was not cured. In 131 splenectomies for different causes there were sixteen deaths (12.2 per cent.). Before 1890 the mortality was 42.2 per cent.

Surgeons have evidently gained in cunning and if splenectomy is indicated to save life the mortality rate does not contraindicate resort to the removal of the organ.

The responsibility of early and accurate diagnosis must rest with the general practitioner. Maragliano and Terrille report sixteen cases of

Banti's disease treated by splenectomy with three deaths. In two of the fatal cases there was probably a mistake in diagnosis. The two diseases with which it is most frequently confounded are hepatic cirrhosis with enlarged spleen; hematemesis being present and splenic leucemia. To operate in the latter case is nearly always fatal, Warren reporting forty-three splenectomies resulting in only five recoveries. Here the differential blood-count settles any doubt.

The condition which Banti describes is characterized by ascites, hepatic cirrhosis and splenomegaly. There are three stages. In the first, which lasts from three to ten years, splenomegaly and anemia are present. The second stage is marked by a reduction in the amount of urine and an increase in bile pigments and urates. It persists several months. The third stage is characterized by the development of ascites, which is painless. Death usually occurs within a year of the advent of this symptom.

The blood changes are only fairly characteristic. Levison recapitulates them as follows: Oligocythemia, the average number of red cells being about 3,500,000; oligochromia, the low percentage of hemoglobin is fairly constant and is marked by a low color index. In pernicious anemia the contrary obtains, and leucopenia. This is quite constant. The red cells and the differential count reveal nothing of diagnostic value.

The postoperative conditions of these cases may be interestingly compared with those which follow the removal of a normal spleen. In the latter case the lymph glands enlarge, the bones become tender; there are characteristic blood changes, polyuria, abdominal pain, thirst; elevation of temperature and of pulse. These symptoms, however, are not observed in the case of children. In splenectomy for extensive esolienic lesions, however, no such changes occur. The splenic function has evidently been slowly assumed—as the lienal parenchyma died—by other organs—an interesting side-light on the too little known topic of vicarious organic action.

ECONOMICS AND TYPHOID.

There is a terse paragraph in the last message of Governor Odell to the legislature, which merits more notice than we have seen credited it. The Governor recommends that means be put in the hands of the Commissioner of Health which will enable him to secure a complete record of the water supplies of the State and the conditions which may produce epidemics.

The Governor's words are as follows:

"A complete record of the sources of public water supplies and the possible conditions which may produce epidemics of typhoid fever or other infectious diseases should be secured by the Health Commissioner, and I recommend that an appropriation be granted by the legislature for this purpose."

According to a report from the State Commissioner of Health, there were nearly 25,000 cases of typhoid fever, with a mortality of 1,635 cases, in New York State during 1903. If we take each life sacrificed to the fever to represent $5,000, as is commonly calculated, there was lost last year, through the deaths alone, $8,175,000. Assuming the expense of nursing the 25,000 cases at the low figure of $50 apiece, the cost of the sickness was $1,250,000. If one-fifth of those who were sick were wage earners receiving wages which averaged $1.50 per day, and each patient was incapacitated for work for about six weeks, the total loss of earnings would probably exceed $270,000. Bringing these several items together, the grand total of the cost of typhoid fever to the citizens of New York State is found to have been over $9,695,000.

A railroad wreck, or a conflagration such as the recent theater fire at Chicago, would, if in New York State, have given a stimulus for legislation for the prevention of the recurrence of similar calamities. Yet the results in lives lost and money sacrificed would, in all likelihood, not be comparable with the losses entailed every year to the citizens of this State by reason of typhoid fever.

It is to be hoped that the Governor's reference to the need of a report on typhoid will receive the prompt and generous support of the legislature. Investigations and circulars of typhoid have been issued by many other State boards of health in the past, and the work should be undertaken here in a broad and scientific manner. We shall look with interest for the introduction of a bill in the present legislature, authorizing the expenditure of the means required, and will favor the employment of the most expert skill which the Commissioner can secure in bringing this matter to a successful conclusion. If the work is well and honestly done, it should produce the most beneficial results in New York and have a wide educational influence elsewhere. If not done in the best manner possible, it would better not be undertaken. Experience shows that parsimony in public health work is poor policy.

ALBUMOSES AND PEPTONES.

RECENT researches in the domain of the physiology of digestion have been exceedingly fruitful of results and have brought into existence such a wealth of literature, widely scattered in the various technical journals, that it is somewhat difficult for the busy physician to remain *au courant*. An occasional survey of the most notable achievements may accordingly not be out of place.

According to the doctrine of Kühne, peptic as well as tryptic digestion of the albumins led to the formation first of primary albumoses, which were then transformed into secondary albumoses and these again into peptones. But, while the albumoses of peptic and of tryptic origin were regarded as identical, Kühne differentiated the peptone produced in the stomach—his amphopeptone—from that produced during pancreatic digestion. In the former, two hypothetical groups were still united, of which one—the hemigroup—could be further decomposed by trypsin, while the other—the antigroup—was resistent. Tryptic digestion, according to Kühne, thus led to an antipeptone, which differed from the amphopeptone in the absence of the hemicomplexes. These were supposedly decomposed with the formation of amido-acids.

This doctrine has been more or less modified by recent investigation. Through the Strassburg school especially it has been shown that the number of primary products of peptic digestion is larger than was supposed by Kühne, and that in the earliest stages of digestion already products are formed, alongside of various albumoses, which no longer give the biuret reaction, and which are now commonly spoken of as peptoids. Later, the primary albumoses are transformed into secondary albumoses, of which also several varieties exist. Following this stage of digestion, products are formed which differ from the albumoses in the fact that they cannot be precipitated from their solutions by saturation with ammonium sulphate, either in the presence of an acid or alkali, or with a neutral reaction.

This brings us to Kühne's concept of peptone and his assumption of an essential difference between that formed during gastric digestion as compared with the product of tryptic digestion, and with it to the question of the unity of these products. Kühne himself doubted the unity of antipeptone, and it has now been demonstrated beyond all possibility of error that an amphopeptone and an antipeptone do not exist in the original meaning of the term. These hypothetical substances have been shown to represent mixtures of various fundamental constituents of the original albuminous molecule, which partly gives the biuret reaction. It has been ascertained moreover that these products are the same, no matter whether the decomposition of the original albuminous molecule has been effected by means of pepsin or by trypsin. The essential difference between the two ferments appears to lie in their effect on the velocity of reaction, viz., the varying rapidity with which the ultimate destruction of the albumin is brought about. In this respect trypsin is more active than pepsin.

With the destruction of the original concept of peptone interest has become centered in those final products from which the tissue albumins must again be constructed. These comprise the common mono-amido acids, leucin, alanin, glycocol, amidovalerianic acid, glutaminic and aspartic acid; the diamido acids, arginin, lysin and histidin; the sulphur body cystin; the aromatic amido acids, phenylalanin and tyrosin, etc. They represent various radicles which probably exist in the albuminous molecule preformed and are linked together in more or less complex groups. The combinations of amido acids E. Fischer has termed peptids, and in a most interesting series of experiments he has shown that bodies of this order are formed during proteolytic digestion and occupy a position intermediary between the albumoses and the true end products. Among the products of tryptic digestion in the case of casein, egg-albumin, fibrin, serum globulin, etc., he could thus demonstrate a polypeptid which still contained the various amido-acids, that can be obtained from the albumins in question, and at a time where such acids already existed in the free state. Probably Siegfried's "peptones" also belong to this group, which are manifestly fairly simple bodies, as on further decomposition they only yield a small number of end products.

To sum up, the evidence is now quite conclusive that both during gastric and intestinal digestion the albuminous molecule is completely broken down to its fundamental components and we are forced to the conclusion that the various tissue albumins are formed synthetically from these comparatively simple substances, in a manner quite analogous to the formation of fat and of glycogen. Löwi has shown that it is possible to maintain nitrogenous equilibrium in dogs by feeding with the crystalline cleavage product, the result of pancreatic autolysis, which no longer gives the biuret reaction, and his results have al-

ready been confirmed by others (Henderson and Dean). In this connection it is interesting to note that the first steps toward a synthetic formation of albumoses have yielded very encouraging results. E. Fischer has suggested that the amido-acids probably exist in the albuminous molecule as anhydrides, and united to each other according to the plan: CH—NH—CO, viz., NH—CH—CO—NH. Starting from this assumption he has succeeded in uniting amido-acids with each other to form various dipeptids and tripeptids and theoretically nothing should be in the way of the artificial production of polypeptids, such as they are now assumed to occur in the intact albuminous molecule.

PROFESSOR HALLIBURTON'S LECTURES AND NERVE REGENERATION.

As the result of a foundation by Dr. Christian A. Herter, there is to be every year at the Bellevue Medical School, a series of scientific lectures on some subjects connected with medicine by a distinguished investigator, or teacher from some other medical school in Europe, or this country.

The first of these series of lectures was concluded on Wednesday of the present week and was given by Professor W. D. Halliburton, of the University of London, England.

Professor Halliburton is known as an original investigator in physiology and physiological chemistry and as one whose conservative conclusions are considered worthy of every attention. His lectures have proved of more than usual interest.

Dr. Halliburton's delivery is excellent and he evidently has the precious gift of teaching, which needless to say, not all original investigators share. It is seldom that a body of students has had the opportunity to enjoy an intellectual treat of so high an order as this in which the *utile cum dulce* were mingled so as to create the feeling that perhaps there was, after all, a royal road to the learning of physiology.

One of the most practical of Dr. Halliburton's lectures, was that on nerve regeneration—a subject that can scarcely fail to be of interest to every practitioner of medicine. The matter has been recently investigated by a number of observers, especially Ballance and Purvis Stewart, in England, and in this country by Howell, Huber and Cushing. Ballance and Stewart have taught that cut nerves regenerate not only from the central stump, as Waller originally taught, but also in the periphery. Howell and Huber have found that while in the peripheral portion of a cut nerve some preparation for regeneration may be noticed, the axis cylinder, the essential part of the new nerve regenerated only from the central portion. In confirmation of this Mott and Halliburton found a great activity of neurilemma cells, which, by the Golgi staining, may resemble nerve fibers, but are not true nerve fibers. This conclusion has been confirmed by the studies of Langley and Anderson at the University of Cambridge in England.

In clinical surgical reports there are certain cases which seem to contradict entirely the teaching of the necessity for new growth of nerve fibers, since apparently they point to direct union of severed ends and almost immediate reestablishment of nervous transmission. Cut nerves are sewed together and feeling is noted very soon afterward. In these cases Professor Halliburton is convinced that it is not the physician who is at fault in his investigations, but the patient who, because of an eminently suggestive mood, wrongly interprets the sensations present. As a rule, whatever sensations may be supposed to be present in the region supplied by the cut nerve, they soon pass off and the true restoration of nervous function takes many weeks or even months, but true return of function, both sensory and motor, has followed nerve anastomosis.

This whole subject of nerve regeneration was treated in a masterly fashion and withal with a pleasant teaching manner that made the lecture always a source of unflagging interest. It is evident that Dr. Herter has done an excellent work in thus providing an opportunity for students of Bellevue to hear distinguished medical authorities outside of their own faculty and his example may well be imitated by other members of the profession, or by others who wish to confer a real benefit upon medical education. These lectures are sure to produce a sympathetic appreciation of the literature of important subjects and at the same time broaden the views of medical students which are apt to be narrow enough as the result of being constantly influenced by the opinions of a single set of specialists.

It is not long since a distinguished foreign medical visitor announced that within a few years European medical students would come to America in order to finish their practical medical education. Under the inspiration of medical opportunities, such as these, we can readily realize that the truth of such a prophecy will be seen much sooner than would otherwise be expected.

ECHOES AND NEWS.

NEW YORK.

East Side Physicians Association.—A medical society under the name of the East Side Physicians Association of the City of New York was organized January 15, with meeting rooms at 206 East Broadway, Manhattan.

The new Association will meet every third Friday evening of the month excepting July, August and September. The following officers were elected for 1904: Dr. Ignatz Morway Rottenberg, President; Dr. Maurice J. Burstein, first Vice-President; Dr. Frederic N. Wilson, second Vice-President; Dr. Nathan Friedman, Secretary; Dr. Maurice Caspe, Treasurer; Dr. Sigmund A. Tarlor, Chairman of Ways and Means Committee; Dr. William S. Gottheil, Chairman of Committee on Ethics; Drs. Robert Abrahams, Abram Brothers and Max Landesman, Trustees; Drs. Maurice M. Berger (Chairman), Julius Solow, Waldema Dorfman, Pierre A. Siegelstein and Isidor Ritter, Committee on Admission.

Food Adulteration in New York State.—Charles A. Wieting, Commissioner of Agriculture, in his report to the legislature, says that the work done under the Pure Food Law of 1903 has been confined to collecting and analyzing samples of food products. With a few exceptions the catsups examined were found to contain preservatives and coloring matter. Out of the 17 samples of cream of tartar eight were found to be substitutes. Of the coffees analyzed a few samples were found to contain foreign substances. Of the samples of molasses and syrups it was found that many were composed of sucrose mixed with glucose. Seven of the 12 oils examined were found to be pure oil and five cottonseed oil. The following table, showing the amount of butter and cheese manufactured in the State, is given:

BIENNIAL STATEMENT.

Year.	Butter, lbs.	Cheese, lbs.
1892	19,497,357	130,991,310
1894	23,218,626	115,763,325
1896	21,429,694	87,765,143
1898	30,586,088	105,405,266
1900	39,183,311	126,658,672
1902	49,919,794	123,987,516

The Commissioner says that New York is the leading cheese State, the amount made here being nearly one-half that produced in the United States. The consumption of pure milk is increasing with great rapidity. While in 1884 the milk consumed in the city of New York was 529,954 forty-quart cans, in 1894 it was 1,939,454 cans, and in 1903 it was 1,734,953 cans.

Woman's Place in Medicine.—Woman's position in the medical world was described by Miss M. Carey Thomas, president of Bryn Mawr College, at the fiftieth anniversary celebration of the New York Infirmary for Women and Children, at the Waldorf-Astoria on Saturday evening. Part of the address was as follows:

"Medicine, though closely allied to nursing and requiring for success many of those same qualities that women seem preeminently to possess, is one of the professions into which the influx of men has been phenomenally great during the past fifty years. So much of a physician's education as precedes the medical degree can now be obtained with little difficulty. Until ten years ago, when the Johns Hopkins University opened its co-educational medical school, which afforded women the inestimable privilege of studying under some of the most eminent physicians of the world, women were excluded from all the great medical schools of the East of the United States. It is only a question of time when all medical schools will admit women. In view of the trend of modern opinion and usage, it seems incredible that in the great city of New York no woman can obtain the first two years of a regular medical training without leaving her native city and residing, at great additional expense, in Ithaca, Philadelphia, or Baltimore, or in some other city. In other respects the other great cities of the East are sadly illiberal to women, and New York is one of the most illiberal of all. It seems incredible that in 1853 Dr. Elizabeth Blackwell found it necessary to found the infirmary to provide clinical work and hospital practice for herself and other women physicians, and that fifty years afterward this infirmary and a small women's homeopathic hospital are still practically the only hospitals where women may practice as internes or as visiting or regularly appointed dispensary physicians. In Great Britain, on the contrary, much greater justice is shown to women. Twenty hospitals in London, ten in Glasgow, nine in Manchester, seven in Edinburgh, and five in Dublin are open to them. The condition of affairs in America is all the more difficult to explain because where women patients are, there should women students and women physicians be—and where men patients are women students and women physicians are no more to be objected to than women nurses; and if we must choose between disagreeable alternatives, it is, after all, far less objectionable from every point of view, except from that of tradition and prejudice, for men and women together to study and treat diseased men in hospitals and clinics than as now in most hospitals for men only to study and treat diseased women.

Value of District Nursing in Tuberculosis.—Prof. Walter B. James in a lecture to his class at the College of Physicians and Surgeons on the treatment of tuberculosis in this city, said that to treat a patient in hospital costs about $1 per day or nearly $400 per year. With a slight addition, this sum would pay the salary of a district nurse for the same length of time and would enable her to supervise the home treatment of from three to five hundred patients. At present by removal to a hospital we can only hope to destroy a single focus of the disease and are pretty sure to leave several behind who will contract it sooner or later. By the "visiting" method, however, it is conceivable that one person in four might be saved from infection. This would apply, of course, only to the very poor who are ignorant of the most fundamental hygienic laws.

Lectures by Dr. Halliburton.—The first series of lectures, established by Dr. Christian A. Herter at the University and Bellevue Hospital Medical College has just been completed by Dr. W. D. Halliburton, Professor of Physiology at King's College, London. The lecturer has for some years been President of the Section of Physiology of the British Medical Association. Two years ago he was selected to deliver the Croonian Lectures before the Royal College of Physicians in London. The present course of twelve lectures was devoted to the consideration of the biochemistry of muscle and nerve. The work is largely the result of the author's own discoveries. The lectures were held daily in the Carnegie Laboratory, 338 East Twenty-sixth street, at 4 o'clock.

Books for the Hospitals.—The twenty-ninth annual report of the Hospital Book and Newspaper Society, which is a branch of the State Charities Aid Association, shows the following work done during the year: Total amount of reading matter distributed during the year ending Sept. 30, 1903—Books, 6,095; magazines, 27,220; weekly and illustrated papers, 47,370.

Collected from the society boxes (estimated)—Books, 2,225; magazines, 11,500; papers, 187,000.

Smallpox Still Active in New York State.—The State Health Department issued its weekly bulletin on smallpox, showing that last week new cases have appeared in the following places in this State: The villages of Salamanca and West Salamanca, Cattaraugus County; the city of Plattsburg, Clinton County; the village of Middleport, and the town of Cambria, Niagara County, and the town of Massena, St. Lawrence County. The epidemic which has prevailed extensively in the village of Medina, Orleans County, appears to have subsided.

Death of Dr. Frank Shaw.—At a special meeting of the Medical Board of the Norwegian Hospital, held Jan. 11, 1904, the following resolutions were unanimously adopted: *Whereas*, we, the members of the Medical Board of the Norwegian Hospital, having learned with profound regret of the death of our late associate, Dr. Frank W. Shaw; and

Whereas, Dr. Shaw, by his nobility of character, scientific attainments, and devotion to the sick, endeared himself to us as a man and a physician; be it therefore

Resolved, that we, the members of the staff, fully realize and feel, that by his death, the entire medical profession has sustained a grievous and lasting loss; and furthermore, be it

Resolved, that we tender our sincerest sympathy to his family in their bereavement; and further be it

Resolved, that a copy of these resolutions be sent to the family, and to the medical journals of our city; and be it further

Resolved, that these resolutions be spread in full upon the minutes of this board.

PHILADELPHIA.

Hospital Bequests.—By the will of the late Henry B. Ashmead his estate of $500,000 reverts to the Episcopal Hospital as a memorial to his wife after the death of his widow and daughter. The late Louis C. Vanuxem bequeathed to the Jefferson Hospital, of which he was a trustee, $25,000.

Medical Jurisprudence Society.—At the meeting of this society, held January 18, Dr. D. J. McCarthy read a paper on "The Conducting of Medical Investigation in Medicolegal Cases at Vienna, with Special Reference to Laboratory Work;" W. W. Smithers, Esq., read a paper on "Criminal Law Procedure in Continental Europe." Officers for the ensuing year were elected.

Philadelphia Medical Club.—The annual meeting of the Medical Club of Philadelphia was held at the Bellevue, January 16. The club is eleven years old and has 570 members. The following officers were elected: President, Dr. E. E. Montgomery; first vice-president, Dr. Roland G. Curtin; second vice-president, Dr. Wharton Sinkler; secretary, Dr. J. Gurney Taylor; treasurer, Dr. F. Savary Pearce; member of the Board of Governors, Dr. E. L. Duer; Executive Committee, Dr. Hobart A. Hare, Dr. Ernest Laplace, Dr. William H. Warder, Dr. Alexander McAlister and Dr. Walter L. Pyle. After the election a loving cup was presented by the society to Dr. Guy Hinsdale, the retiring secretary, who leaves in a short time to engage in practice at Hot Springs, Virginia.

Neurological Society.—In celebration of the twentieth anniversary of the organization of the Philadelphia Neurological Society, the following special program has been announced for the meeting to be held January 26, at 8.15 P.M.: "The Metaphysical Conception of Insanity," by Dr. J. Hendrie Lloyd; "The Mental Processes by Which the Rest-Treatment Was Developed," by Dr. S. Weir Mitchell; "The Surgical Operations Applicable in Insanity," by Dr. J. Chalmers DaCosta; "Mystic Medicine," by Dr. F. X. Dercum. All members of the medical profession are invited to attend.

College of Physicians.—At the meeting of the Section on Medicine, January 11, was held a symposium on "The Early Manifestations of Cirrhosis of the Liver." Dr. W. W. Ford, of Baltimore, spoke on the Pathology; Dr. D. L. Edsall upon the Chemistry, and Dr. Charles G. Stockton, of Buffalo, upon the Clinical Manifestations.

School Inspection.—It is stated that regular inspection of the schools will soon be begun, the additional inspectors to be appointed this week. The experimental inspection of the Mount Vernon school for one month showed that 75 per cent. of the 1,100 pupils were noticeably uncleanly. There were two cases of trachoma, 42 of acute contagious ophthalmia, and 47 of defective vision. Cases of ringworm were also observed. Director Martin, in conjunction with the Board of Education, is arranging a series of lectures on "School Hygiene," for the teachers.

CHICAGO.

To Rebuild Hospital.—The Michael Reese Hospital is to be rebuilt at a cost of more than $250,000. A special committee recently met to provide funds for demolishing the old structure and erecting a new one. The committee decided that to build a suitable edifice at least $250,000 would be required. Of this amount $115,000 was subscribed at the meeting, contingent, however, upon the committee's ability to raise the remainder.

Nurses Must Go Visiting.—Nurses in training schools in the different hospitals of Chicago hereafter will have a month of district or visiting work added to their curriculum. This was decided at a regular bimonthly meeting of the superintendents of hospitals.

New Superintendent for Presbyterian Hospital.—After February 1 the Presbyterian Hospital will have a new superintendent in the person of Dr. Arthur B. Ancker, for twenty-one years superintendent of the city and county hospital in St. Paul, Minn. Dr. Ancker is one of the most eminent hospital superintendents in the United States and has made a wonderful record in St. Paul.

Notes on University of Chicago. Suggestions for enlargement of the work of the University of Chicago, involving a probable outlay of nearly $21,000,000 are made by President Harper in his decennial report of the university, recently issued from the University Press. President Harper's plans for the enlargement of the medical department involve: "The addition of three new clinical departments, medicine, surgery, and obstetrics, the erection of new laboratories on Marshall field, opposite the Hull biological laboratories, the provision of a temporary dispensary near the university; the provision at the earliest date possible of five hospitals for medicine, surgery, obstetrics, children's diseases, and contagious diseases, to cost, with endowment, $1,000,000 each; the raising by Rush Medical College of $1,000,000; the completion of the group of buildings, of which the Senn memorial is the first part, cost $350,000; the organization of a school of dentistry and a nurses' training school."

Institution for Treatment of Infectious Disease.—Chicago is to have a new hospital on the South Side, plans now being under consideration for the erection of extensive buildings where the work of the Memorial Institute for Infectious Diseases will be carried on, and

its scope greatly increased. Thus far the work of the institute has been confined to the treatment of scarlet fever cases, the patients being housed through the leasing of beds at the Presbyterian Hospital, and to original laboratory investigation of scarlet fever. Special provision in the shape of an elaborately equipped laboratory will be made at the new hospital for a continuation of such investigation, which will probably be extended to embrace research as to the nature of other infectious diseases.

Work of Progressive Health Club.—Social ostracism for chewers of tobacco, increased fines and penalties for people who expectorate on sidewalks and in public conveyances and a general acceptance of the doctrine that cleanliness and morality are synonymous terms, are aims of this club. The club's basis objects are the investigation and study of hygiene and home sanitation, pure food measures, climatology, bacteriology, the influence of the solar system on human health, and lastly the expectoration nuisance. But now the last has become the first, and all of the society's energies will be bent toward the abolition of a habit that, in their opinion, has spread more disease and discomfort in centers of population than any one other. The Health Club proposes that special officers be stationed in street cars and on the main thoroughfares to arrest spitters. It is urged that after a few months of such efforts the death rate would decrease, for the spread of typhoid fever and many other contagious and infectious maladies would thus be lessened, and the public health promoted. A few examples of the punishment of offenders would suffice to bring about a general cessation of the habit, for people would be shamed or frightened into desisting from a practice that endangered not only their reputation for cleanliness and decency, but their freedom as well. The aid of all organizations interested in the promotion of the public health, and of reform bodies generally will be invited. Addresses will be delivered to school children, and the board of education will be asked to take up the subject in some form. Associations of physicians, and individual workers in the cause of hygiene and sanitation will be asked to cooperate. Funds will be raised to further the prosecution of all offenders.

Medical Colleges Debarred.—On January 12, the medical examiners of the Wisconsin board decided not to accept as evidence of ample medical training the diplomas of Harvey Medical College, National Medical University, and Jenner Medical College, all of Chicago. The ground for the action is that the courses of study in these institutions do not come up to the standard adopted as the minimum by the Wisconsin board. Other schools that are deficient are to be removed from the accredited list. The board is also about to prosecute a number of unqualified practitioners in the State.

GENERAL.

American Laryngological Society.—The annual meeting of the Eastern Section of the American Laryngological, Rhinological and Otological Society will be held Saturday, January 30, 1904, at the Young Men's Christian Association Building, corner North Main and Pine streets, Fall River, Mass. The medical profession is cordially invited to attend the meeting.

Kalamazoo Academy of Medicine.—The annual meeting of the Kalamazoo Academy of Medicine was held at the Michigan Asylum for the Insane at Kalamazoo on January 12, 1904. The Academy is a district society having 106 active members and holds monthly meetings. A few years ago Dr. Edwin H. Van Deusen, a member of the Academy, gave the City of Kalamazoo a very fine public library building. In this building is a large assembly hall with anterooms, cloakrooms and toilet adjoining, which is by the terms of the gift set apart in perpetuity for the meeting place of the Academy. At the annual meeting Dr. E. C. Dudley, of Chicago, gave an address on "Perineorrhaphy" and operated on a case in the asylum hospital. Dr. Daniel LaFerte, of Detroit, read a paper on "The Treatment of Some Sequelæ of Hip-joint Disease." The retiring President's address was given by Dr. Herman Ostrander, of the asylum staff. The following officers were elected: President, Dr. L. G. Rhodes, South Haven; First Vice-President, Dr. Paul T. Butler, Alamo; Second Vice-President, Dr. M. P. White, Dowagiac; Censors, Dr. O. F. Burrows, Jr., Plainwell; Dr. E. P. Wilbur, Kalamazoo; Secretary, Dr. Della P. Pierce, Kalamazoo; Treasurer, Dr. O. B. Ranney, Kalamazoo; Librarian, Dr. E. H. Van Deusen, Kalamazoo.

Medical Clerk.—The United States Civil Service Commission announces an examination on February 17 and 18, 1904, to secure eligibles from which to make certification to fill eighteen vacancies in the position of copyist (male), at $900 per annum, in the Bureau of Pensions, and other similar vacancies, as they may occur. The examination will consist of the subjects mentioned herewith: (1) Letter-writing (a letter of not less than 150 words on some subject of general interest, competitors will be permitted to select one of two subjects given); (2) penmanship (the handwriting of the competitor in the subject of copying will be considered with special reference to the elements of legibility, rapidity, neatness, general appearance, etc.); (3) copying (a test consisting of two exercises—the first to be an exact copy of the matter given, and the second to be the writing of a smooth copy of rough-draft manuscript, including correction of all errors of spelling, capitalization, syntax, etc.); (4) anatomy and physiology; (5) diagnosis; (6) general and special pathology; (7) surgery and surgical pathology. Age limits twenty-five to thirty years. Only graduates of recognized medical schools may be examined. This examination is held to establish a register of eligibles with a knowledge of medicine. This examination is open to all citizens of the United States who comply with the requirements. Competitors will be rated without regard to any consideration other than the qualifications shown in their examination papers, and eligibles will be certified strictly in accordance with the civil service law and rules. Persons who desire to compete should at once apply either to the United States Civil Service Commission, Washington, D. C., or to the secretary of the local board of examiners at the places mentioned in the accompanying list, for application Form 1312, which should be properly executed and filed with the Commission at Washington. In applying for this examination the exact title as given at the head of this announcement should be used in the application. Persons who are unable to file their formal applications and who notify the Commission of this fact, either by letter or telegram, with the request that they be permitted to take this examination, will be examined, subject to the subsequent filing of their applications, in complete form, provided their requests are received at the Commission in sufficient time to ship examination papers.

OBITUARY.

Dr. EDMUND S. HANNA, for many years a well-known physician of Pittsburg, died January 17, at his residence, 40 William street, East Orange, N. J. He was stricken with apoplexy last Tuesday and never recovered consciousness. He was born in Steubenville, Ohio, seventy-five years ago, and was graduated from Jefferson Med-

ical College, Philadelphia, in 1850. He began practice in Pittsburg and was surgeon of the Allegheny County Workhouse, the Children's Church Home, the Baltimore and Ohio Railroad, and the Allegheny Valley Railroad for many years. He retired in 1888 and moved to Boston, but took up his residence in East Orange eight years ago. He was a member of McCandless Lodge of Masons and Pittsburg Commandery.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, Dec. 26, 1903.

RETIREMENT OF A FAMOUS PHYSIOLOGIST—THE OXFORD MEDICAL SCHOOL.

Sir John Burdon-Sanderson, Regius Professor of Physics in the University of Oxford has just resigned his chair. He has exceeded the biblical limit of life by five years and doubtless feels that he has well earned a rest from active life. For more than thirty years he has been recognized as one of the foremost physiologists of Europe. After holding the chair of physiology in University College, London, for several years, he was in 1882 appointed to the Waynflete Professorship of Physiology at Oxford, being the first occupant of the chair which had then been newly founded. There was then little or no provision for the practical teaching of physiology at Oxford and a proposal to expend $50,000 in the erection of a lecture room, a laboratory and working rooms, for the purpose, met with determined opposition on the part of a number of Members of Convocation, a large proportion of whom were country parsons. Burdon-Sanderson was known as a vivisector, and antivivisectionist sentiment was aroused to the point of fury. Professor E. A. Freeman, author of the "History of Norman Conquest," etc., denounced the proposal with all the truculence of the overbearing pedant which he displayed in his criticisms of Froude and of everyone who differed from him about anything. The nonsense which he talked on that occasion is scarcely to be matched even among the utterances of the ignorant folk who air their folly in the newspapers. The measure of his comprehension of the question at issue may be gathered from the following "arguments" put forward in his speech. He would not allow any class of men a monopoly in science. As a historian he claimed to be as much a man of science as any one who operated on live rabbits, but he did not ask to be allowed to illustrate the siege of Jerusalem by a repetition of its massacres, or the Elizabethan festivities at Kenilworth by a bull baiting. He deprecated the establishment in Oxford of a "chamber of horrors." After a tough fight the antivivisectionists were outvoted. But they would not accept defeat, and attempted to turn the flank of the enemy by inducing Convocation not to vote the annual grant required for the lighting, warming and general upkeep of the laboratory. This, too, failed, but the controversy led to the severance of life-long friendships and to John Ruskin's resignation of the Slade Professorship of Art. To Ruskin's mind, says his biographer, vivisection meant not only cruelty to animals but a complete misunderstanding of science and defiance of the moral law. Burdon-Sanderson went quietly on his way heedless of the shrieks and curses of fanaticism, and it is now acknowledged that to him more than to any one else is due the important position which the study of the physical sciences holds at Oxford. In 1895 he succeeded to the Regius Professorship of Medicine which had been held by Sir Henry W. Acland for nearly forty years. Ten years ago he received the highest honor which a scientific man can receive from his brethren in this country by his election to the Presidency of the British Association for the Advancement of Science. He has also taken a leading part in the reorganization of the University of London. Himself a graduate of the University of Edinburgh, he was for some time physician to the Middlesex Hospital and the Brompton Consumption Hospital in London. His tastes and aptitudes, however, inclined him more to scientific research than to medical practice. But he has done some good work in pathology, particularly on inflammation, and in the province of public health. Personally he is a man of singular charm with a fine spiritual face which of itself is a sufficient refutation of the charges of cruelty that are still brought against him by the rabble rout of antivivisectionists. As a teacher he was too far above the head of the average student to be helpful for the passing of ordinary examinations. But on men of higher intelligence he had an inspiring influence which stimulated them to spurn delights and live laborious days in the search for knowledge. Many stories are told of his absence of mind, of which the following may serve as a specimen. His laboratory assistant, who watched over him like a nurse, left him one day standing at a table with a frog on one hand and a sandwich on the other. When he returned he found the Professor still absorbed in thought, apparently studying the sandwich, for the frog had disappeared. The animal was never found, and it is inferred that it formed the luncheon of the Professor. Burdon-Sanderson was made a Baronet in 1899 in recognition of his scientific eminence to the disgust of the antivivisectionists who complain that the sovereign specially delights in honoring vivisectors. In proof of this they point in particular to the peerage bestowed on Lister and the knighthood on Victor Horsley. It certainly is a remarkable testimony to the general good sense of our government that those men should have been selected for titular distinction notwithstanding the well-known fact that the Royal family is strongly opposed to vivisection.

It would be difficult to overestimate Burdon-Sanderson's services to Oxford in the development of opportunities for scientific study and research. Twenty-five years ago an outcry was raised in the medical press about the inadequacy or rather the almost total lack of any provision for the study of medicine at Oxford. It was described by Ray Lankester as the "Lost Medical School:" it was said that "vacuity and annihilation now reigned where once medicine flourished and science found her own." Acland, the Professor of Medicine, was denounced as a dilettante, and Rolleston, the Professor of Anatomy was accused of "occupying himself and his pupils with any variety of collateral subjects provided that they had no relation to human anatomy and physiology and could not be pressed into the service of medicine." That there was a considerable amount of truth in these charges is unquestionable. Owing mainly to the conservatism characteristic of Oxford, which was described by Matthew Arnold, as "the home of lost causes," the efforts of the reforming party were defeated. Doubtless the financial difficulty stood in the way, for it was estimated by Ray Lankester that $100,000 a year would be required to maintain a staff adequate to the requirements of a course of practical medicine, and that $250,000 would have to be sunk in additional buildings. But the main obstacle was Acland's rooted objection to the "flooding of the University with mere medical students, specializing from the date of their matriculation, unaffected by the spirit of the place and with the smallest conceivable touch of humanistic learning." Acland was a typical specimen

of the academic mind as formed in our public schools and universities. He never seemed to be able to get rid of the idea that there was something vulgar about medicine, and his gently patronizing manner always conveyed the impression that he felt it a condescension on his part as a member of an ancient family to have adopted it as a profession. Though no great scholar himself, he wished to keep the sacred groves of Academe unpolluted by those who had, like Shakespeare, small Latin and less Greek. While he reigned, therefore, there was no prospect of the lost medical school being restored to life. Yet Cambridge had shown that an ancient university can under right direction be something more than an institution for competitive exercises in classical and mathematical lore and a finishing school for amateur cricketers. Under the influence of the late Professor G. M. Humphry and Sir Michael Foster it has grown from a negligible quantity into the largest medical school in England. Thanks to Burdon-Sanderson, the Oxford medical school, though still small, is now, as far as the ancillary and fundamental scientific subjects are concerned, the most important in the United Kingdom. The students are a select body who have to graduate in arts as a necessary preliminary to graduation in medicine, and the medical degrees of the University are more highly valued than those of any other school. To those who remember the state of things a quarter of a century ago, when the possession of an Oxford or Cambridge degree was a rarity in the medical profession the change is marvelous. Cambridge graduates are now as plentiful as blackberries, while Oxford doctors are fairly common. One result is a marked rise of the profession in the esteem of the British public which knows that the degrees of the two older universities are costlier than others and values them accordingly.

THE PHYSICIAN IN THE APOCRYPHA.

January 11, 1904.

To the Editor of the MEDICAL NEWS:

DEAR SIR: In the *Churchman* of January 9, 1904, George Foster Peabody calls attention to the appended verses in the Apocrypha bearing upon the physician and the "honor due him."

These assembled verses make an excellent short tract. It would be well if they could have a wide distribution especially among "Christian Scientists," "Faith Healers," etc.:

Honour a physician with the honour due unto him for the uses which ye may have of him: for the Lord hath created him.

For of the most High cometh healing, and he shall receive honour of the king.

The skill of the physician shall lift up his head: and in the sight of great men he shall be in admiration.

The Lord hath created medicines out of the earth: and he that is wise will not abhor them.

Was not the water made sweet with wood, that the virtue thereof might be known?

And he hath given men skill that he might be honored in his marvelous works.

With such doth he heal (men) and taketh away their pains.

Of such doth the apothecary make a confection; and of his works there is no end; and from him is peace over all the earth.

My son, in thy sickness be not negligent: but pray the Lord and he will make thee whole.

Leave off from sin, and order thine hands aright, and cleanse thy heart from all wickedness.

Give a sweet savor, and a memorial of fine flour; and make a fat offering, as not being.

Then give place to the physician, for the Lord hath created him: let him not go from thee, for thou hast need of him.

For they shall also pray unto the Lord, that he would prosper that which they give for ease and remedy to prolong life.—Ecclesiasticus xxxviii, 1-15.

THEODORE DILLER.

SOCIETY PROCEEDINGS.

CHICAGO SURGICAL SOCIETY.

Regular Meeting, held December 7, 1903.

The President, Dr. E. Wyllys Andrews, in the Chair.

Keloid Treated by X-rays.—Dr. Wm. M. Harsha reported three cases. The patient was a young man, eighteen years of age, with a small growth behind the right ear, which had existed for ten years. Five years ago it grew to the size of an ordinary marble. It was excised. In three or four months the tumor was as large as ever, and finally grew to be twice the size it was formerly. Histological examination showed the characteristic formation of keloid. The growth was gradually becoming smaller and smaller under X-ray treatment, so that at present it was only one-sixth of the size it was when treatment was begun.

Pancreatic Cyst.—The second case was one of pancreatic cyst in a man aged twenty-nine years. The cyst had attained the size of a large cocoanut, filling the half of the left side of the abdomen. Fluctuation was distinct; there was no temperature, loss of weight, or other disturbance. Resonance could be made out above and to the left side of the tumor. An incision was made at the site of the scar from a former operation; the cyst wall presented, and was followed upward to find the colon above and over the front of it, extending to the pancreas. One-half gallon of fluid was evacuated. The specimen was a thick, turbid fluid of a reddish-brown color, containing thicker grayish-brown mucoid masses. On standing, it deposited a grayish-brown sediment in abundance. The cyst was drawn up into the opening in the abdomen and incised. The cyst wall was one-eighth of an inch thick. An effort was made to detach the cyst wall proper from the peritoneum, but this was so formidable that the operator was content to stitch the edge of the opening to the parietal peritoneum. A large tube was inserted. This kind of drainage has since been continued. The large cavity of the cyst has gradually diminished in size until the present time. Patient made an uninterrupted recovery.

Actinomycosis of Jaw.—This patient, a man fifty years of age, was referred to him with a probable diagnosis of sarcoma of the jaw. The patient had a swelling of the size of a hen's egg at the angle of the jaw on the right side. Actinomycosis was suspected, operation advised, and performed. Microscopic slides showed the characteristic ray fungus in the pus, but not in the tissue. The patient was entirely well.

Dr. L. L. McArthur narrated a case of pancreatic cyst, and said the treatment which had given the best results, though not the lowest mortality, had been total ablation of the sac.

Dr. Halstead mentioned two cases of pancreatic cyst that had come under his observation. In one case the wall was extremely thin. The cyst was opened and drained. In the other the cyst wall was thick, and the cyst contained possibly two quarts of fluid. It apparently grew from the tail of the pancreas, because when

he removed the cyst a piece of the pancreas came with it. He thought in the majority of cases these cysts could be enucleated, and if care was taken in separating the cyst wall from the retroperitoneal tissues, particularly from the large vessels, like the aorta, there was very little trouble. Both patients made good recoveries.

Dr. A. J. Ochsner stated that in several cases in which keloids had been excised and the condition had gotten worse after excision, the improvement was very marked following the X-ray treatment. In one case the keloid diminished to a very slight thickening. He urged that before removing any keloid now one should treat it thoroughly with the X-ray.

Xanthoma Infantum.—Dr. Louis A. Greensfelder reported a case of xanthoma infantum in a boy, aged ten years. The affection dated back as far as the patient could remember. The only manifestations of the disease were found on the cutaneous surface and the tendons, chiefly the extensor digitorum communis, extentor hallucis longus, and tendo Achilles. On the anterior aspect of the chest was a small pedunculated growth, slightly umbilicated, which is sometimes confused with beginning xanthoma, but this was molluscum contagiosum. The symmetry of the lesions was quite striking. A tumor on the right arm had been removed; a tumor involving the right buttocks was characteristic of xanthoma. There was a tumor of the tendo Achilles on both sides.

Dr. Carl Beck mentioned a case of xanthoma in which he had used electrolysis with satisfactory results.

Conservative Surgery in Crushing Injuries of the Arm.—Dr. Daniel N. Eisendrath reported this case as an example of how one could save a member with perfect primary asepsis and the use of conservative methods. He also reported a case of ulcer of the leg following traumatic thrombophlebitis of the lower extremity.

Penetrating Wounds of the Abdomen.—Dr. M. L. Harris read a paper on this subject, in which he reported 16 cases, with 3 deaths. Case I died from rapid profuse internal hemorrhage before the source of the hemorrhage could be discovered and controlled. It might, therefore, be excluded. Case V might also be excluded, he said, as death was due to shock from injury to both lungs and pleuræ and to the spinal cord. Excluding these two cases, there were 14 remaining, with but one death, with eight perforations involving the sigmoid, small intestine and transverse colon, with death on the third day from peritonitis. While in Case II no injury to any of the viscera was found, still operation was imperative on account of hemorrhage. In Cases IX and X neither injury to the viscera nor extensive hemorrhage was found. It may be claimed that these cases would have recovered without operation, and this is undoubtedly true, but who could have foretold before the abdomen was opened. The operation not only did no harm, but was productive of good, as the bullet which might have given rise to subsequent trouble was removed in each case. But, excluding these cases, there were still 11 cases with perforations and hemorrhage in which operation was absolutely indicated, with but one death. Instead of the usual mortality rate of 60 to 70 per cent. following operation, there were over 90 per cent. recoveries. The reasons for this, according to the author's opinion, are chiefly two: (1) Immediate operation. All cases but one were operated on within three hours or less from the time of the accident. (2) Drainage when the gastro-intestinal tract had been opened. The question of drainage in this class of cases was thoroughly discussed at the meeting of the American Surgical Association in 1902, and the consensus of opinion was in favor of drainage. In conclusion the essayist emphasized the following points: (1) In penetrating wounds of the abdomen there are absolutely no known symptoms which indicate injury to any of the viscera, except those noted above in connection with the urinary tract, stomach, and occasionally the lower bowel. (2) Except those relating to general shock, all symptoms following such wounds indicate either internal hemorrhage or peritonitis. (3) To wait for symptoms of perforation of the intestine means to wait until peritonitis has developed; therefore, (4) every bullet or stab wound which penetrates the abdominal cavity should be operated on at the earliest possible moment, in order to anticipate the advent of peritonitis. (5) No time should be wasted in attempting to demonstrate the presence or absence of intestinal perforation by such means as the rectal insufflation of gases or vapors, or the analysis of recollected intraperitoneally injected air or liquids. (6) It is essential to examine systematically the entire gastro-intestinal canal in all cases, regardless of the point of entrance of the wounding body. (7) Whenever the alimentary canal has been perforated, suitable drains should be placed either through the operative incisions or counterincisions, as may appear best suited to the individual case.

Dr. E. J. Seen reported the case of a woman who fell to the ground, striking on the buttocks. This happened about 6 o'clock in the evening, after she had partaken of a hearty meal. She retired without any symptoms seemingly. At 12 o'clock that night she was taken with violent pains in the abdomen. He saw the case the following day in consultation. An operation was advised, consented to and performed. A perforation was found in the lower portion of the jejunum about the size of a small finger-nail. This case showed how there might be a severe injury without immediate symptoms, although he thought the mucous membrane in this case might have protruded in such a way as to have closed off the general peritoneal cavity. He urged early and prompt operation in all cases of perforating wounds of the abdomen.

Dr. Arthur Dean Bevan said he was impressed with reports of the surgeons of the Transvaal war and by the reports of the surgeons during our late war with Spain. He thought these reports could be relied on. In regard to wounds of the stomach, the majority of cases recovered which were not operated upon; a large number of those operated upon died. This statement would not hold good, however, in regard to penetrating wounds of the abdomen in general. There were more recoveries after wounds of the stomach than after intestinal wounds. Where it was possible to do an aseptic operation inside of two or three hours, there could be little doubt that operative treatment should be employed, and he thought the results obtained by Dr. Harris in his cases supported that statement. The conclusions of Dr. Harris, however, should be restricted to civil practice.

Dr. L. L. McArthur thought emphasis should be placed upon prompt interference under such ideal conditions as would obtain in hospital practice. In the cases cited by the essayist there was undoubtedly a perfect surgical technic in the way of antisepsis and asepsis, and which was ideally carried out. Dr. Harris had everything at hand and a corps of assistants that rendered it possible for him to invade any part of the abdomen boldly, freely and safely. These conditions, however, did not obtain in many cases. He was not inclined to believe that every case of perforating wound of the gastro-intestinal tract required drainage, but that the decision should be made upon the conditions found.

through the escape of infective material or not, inflammatory reaction in the peritoneum or not. Certainly he thought it should be as safe to close some of these abdomens as to close, for example, the last two perforations he had had, in which the typhoid stools filled the abdomen in each case, and yet washing it out with salt solution and closing the abdomen, both of the patients recovered.

Dr. D. W. Graham thought the essayist had been unusually fortunate in getting his cases early and under favorable circumstances. He thought cases had been lost by not draining, and believed many of the good results obtained by the essayist were due to drainage. Hereafter, in practically all such cases, he thought he would drain.

Dr. S. C. Plummer narrated a case of stab wound of the abdomen which was inflicted about two inches above and to the right of the umbilicus, with a small portion of the omentum protruding through it. The wound was enlarged and through it an exploration was made, but no injury found to any of the viscera. The exposed portion of omentum was ligated off, and the patient made an uneventful recovery. He narrated a second case of bullet wound. This patient died from hemorrhage.

Dr. John E. Owens said that it was his practice in penetrating wounds of the abdomen to follow the principles laid down by the essayist. The mortality was greatest among those cases in which operations had been delayed. In cases that were operated on early, before the advent of peritonitis, the mortality was very much less.

Dr. Harris, in closing the discussion, said his remarks applied entirely to civil practice. However, he thought the subject of the treatment of wounds in military practice was very much confused. Surgeons knew the great disadvantage under which the military surgeon labored, and the difficulty of getting patients early for operation. The secret of success in these cases was early operation.

Dr. James M. Neff exhibited for Dr. John B. Murphy a specimen from a seven months' abdominal gestation, removed thirteen years later.

Polycystic Kidney.—Dr. Arthur Dean Bevan showed a large polycystic kidney. In this case the clinical symptoms were those of pain on the right side in the kidney region. The man had considerable hemorrhage and secondary anemia from it. The usual incision was made and the mass exposed and removed. The patient made an uninterrupted recovery, having regained his health, weight and strength.

Hypernephroma.—The second specimen exhibited was removed from a case of hypernephroma. An interesting feature connected with the case was that part of the mass projected into the pelvis like a polypus projects into the vagina, and was responsible for the free hemorrhage which was encountered in the case, with profound secondary anemia. He had encountered seven or eight cases of hypernephroma, and said that this form of tumor was a common form of malignant tumor of the kidney. Furthermore, the most severe hemorrhages he had ever seen from the kidney had been in cases of hypernephroma.

Hypernephroma.—Dr. S. C. Plummer reported the case of a man, sixty-eight years of age, who, fourteen months before operation, had a very profuse hematuria. There were practically no symptoms. Patient discovered the tumor accidentally one morning, and about this time he was beginning to show symptoms of malnutrition and weakness. The tumor was removed and proved to be a hypernephroma. There were several cysts connected with it.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Stated Meeting, held December 7, 1903.

Tumor of the Spinal Cord.—Dr. Thomas showed a patient who had been operated on for this affection. The man, aged thirty years, had been admitted to the hospital six weeks previously. Since June, 1901, he had suffered from slight pain in the left forearm, which, by winter, had become severe, and appeared also in the left shoulder when the head was raised or when patient coughed, laughed, sneezed or yawned. For about one year he had slight disability in left leg. He had also noticed some weakness and atrophy of the left hand and an interference with heat and cold sensation in the right leg. On examination atrophy of left hand, pain down left arm, sensory disturbances on the right side, slight stiffness of the left leg, with weakness of the flexor muscles, and exaggerated reflexes on the left side were found. No disturbance of bladder, rectum or sexual organs. The case looked somewhat like syringomyelia, but the long history of pain without motor disturbance pointed to some pressure-cause and tuberculosis, tumor and pacchymeningitis were thought of. X-ray and tuberculin test were negative and operation was performed by Dr. Cushing. The spines and laminæ of four or five vertebræ (those of the sixth or seventh cervical segments) were excised and an intraspinal tumor (fibrosarcoma of the benign type) was found and removed. The cord was uninjured. Patient recovered completely, the motor power is perfect and the sensory disturbances have practically entirely disappeared.

Perineal Zoster.—Dr. Cushing exhibited this case. The patient was operated on last summer for trifacial neuralgia and was doing well when on the fifth day he developed great pain down the back and legs and a little later a perineal herpetic rash. Only one other case of herpes as low as this has been reported and out of Head's 412 cases of zoster there are only 7 sacral. The segmentation of the cord has been studied anatomically (by actual dissection), embryologically, physiologically (by Sherrington's "method of remaining esthesia"), and clinically (by Head's method of mapping out the areas found in zoster cases). None of these, however, give good results in the sacral region, but this case, in which the sixth sacral segment was involved, clears up somewhat the matter of sacral segmentation.

Notes on Hydatid Disease in Australia.—Dr. J. Ramsay, of Launceston, Tasmania, introduced this subject. Australia has relatively more cases of echinococcus disease than any other country, except Iceland, and the disease occurs in all parts of the island. The natural habitat of the disease is the intestinal canal of dogs. Rabbits, kangaroos and oxen are also infected. The feces of dogs are the chief source of infection for man, but many cases follow the drinking of water from "water holes," creeks, etc. The parasites bore through the intestines, pass to liver and portal vein and then find lodgement anywhere (73 per cent. of the American cases occurred in the liver). Huxley divided the parasites into two classes: The ectocyst and the endocyst, and this classification still holds. Within the cyst wall is found hydatid fluid, containing scolices, hooklets, calcium carbonate crystals, daughter- and granddaughter cysts. The cysts may degenerate (with later calcification), suppurate or rupture. The symptoms vary with the site and are due to pressure, rupture and suppuration. The tumor is usually lobulated, fluctuates, and exhibits a peculiar but not constant thrill. Later suppuration occurs with the picture of sepsis. Ascites occurs, but jaundice is rare. Subphrenic cysts give respiratory and circulatory disturbances. Rupture usual-

ly occurs upward, but the cysts may break into the stomach or colon. The picture of septicemia or pyemia is often seen. The disease is hard to tell from other liver conditions, especially carcinoma. The trochar may be inserted for diagnosis, but fluid does not always escape and the procedure is not altogether free from danger.

The lung is affected next in frequency to the liver, the symptoms being pain, cough, dyspnea, small hemoptysis expectoration. Death or cure may follow rupture, which usually takes place into the bronchi. The disease often resembles pulmonary tuberculosis with which, indeed, it may be associated. Hydatid cysts occur also in the peritoneum, bones, diploë, ovary and uterus. They are uncommon in the kidney, thyroid and spine.

Eosinophilia has been observed in some cases, disappearing after operation. Surgical removal of the cysts is the only successful treatment, and the cases so handled usually recover even when the lung is involved.

Intrapelvic Hematoma Following Labor.—Dr. Williams reported this case. The woman, aged thirty years, was on Nov. 7 delivered by forceps of her first child, the placenta coming away normally. Intense pain about rectum occurred soon after and three hours later this had become very severe, symptoms of internal hemorrhage were present, and a tumor of the abdomen reaching to the umbilicus had formed. Laparotomy was done, expected uterine rupture was not found, but a large hematoma, lying between the bladder and symphysis, was cleaned out, and the cavity packed with gauze. The woman recovered, after a subsequent puerperal infection.

Stated Meeting, held December 21, 1903.

Instrument for Timing Coagulation of Blood.—Dr. Boggs reported some experiments done on the coagulation of blood and showed a new instrument for the estimation of coagulation time. In this apparatus a drop or so of blood is placed on the surface of a truncated glass cone. Over the blood a fine current of air is kept blowing, which causes it to rotate as a whole. At the moment of coagulation, however, the rotation of the blood drop which, during the process, has been watched through a microscope, ceases, owing to the formation of fibrin, and thus a sharp reaction is seen at the moment of coagulation. This instrument is based on the principle of the apparatus first proposed by Brodie and Russell, but it is much less complicated and gives relatively constant results. It is also inexpensive. Dr. Boggs' experiments performed during the summer were directed toward demonstrating the possibility of artificially changing the coagulation time in living animals.

With injection of gelatine the results were very inconstant, but most of the animals were entirely unaffected even by tremendous doses. With calcium salts, however, a rapid decrease in the coagulation time occurred quite constantly, and a return to the normal after stoppage of the drug was also usually noted. Injections of gelatine and calcium salts were also tried on blood which had been made pathological by previous injury. The results for gelatine were in this case also negative. The patients studied clinically included cases of gall-bladder disease, scurvy and purpura, and the results were all good when calcium lactate was used. It is necessary in using the instrument shown to have the surface perfectly clean, and to direct it at right angles to the drop when the blood is drawn. The coagulation time is uniformly longer with this instrument than with the Wright's tubes, averaging from four to five minutes. The administration of calcium in one case of jaundice reduced the coagulation time from 13 to 2½ minutes, and good results were also obtained in carcinoma of the bladder, with hematuria.

Limitations of Urinary Diagnosis.—Dr. R. C. Cabot, of Boston, read this paper, in which he said that accuracy must always be relative to one's purpose, and misdirected exactness is a danger of present day students. The wise man knows where to concentrate his accuracy. A large part of the time spent on urinary analysis in relation to kidney conditions is wasted, for, as Councilman says, the urinary examination does not give any sure information as to the type of kidney lesion to be expected. Dr. Cabot reported two cases illustrative of this view. The first patient had before death one-half per cent. of albumin and very large amounts of casts in his urine. He died of spinal meningitis and no lesion was found in either kidney. In the second patient a postoperative partial suppression of urine with edema were the clinical features, and the urine showed, besides a large albumin content, numerous casts, particularly of the waxy variety. At autopsy the kidneys were found absolutely normal. A review of all the cases of nephritis which have come to autopsy at the Massachusetts General Hospital since 1893 shows that 19 have been of the acute glomerular type, five of which (all accompanied by edema), were recognized during life. Of the 17 chronic parenchymatous cases 15 were recognized during life, but in these the clinical picture was quite characteristic, without urinary examination. Of the 37 chronic interstitial cases 14 were correctly diagnosed nephritis, but in only 4 was the type recognized. Concerning the diagnosis of nephritis we may say: (1) Albumin without pus does not necessarily mean inflammation of the kidney; (2) the presence of casts is not diagnostic, for they may be found in normal urine if it is thoroughly centrifugalized; (3) the estimation of solids and urea in the urine without a complete knowledge of the patient's metabolism is misdirected energy; (4) all the information to be obtained by thorough urine examination may be gotten by noting the color, the specific gravity and the amount of a twenty-four-hour specimen.

Dr. Welch, in the discussion, said that the pathologists cannot, of course, construct a clinical history from seeing the kidneys any more than the clinician can prophesy the kidney lesion. The explanation of this lack of concordance is our ignorance of the condition in the kidney on which albumin and casts depend. Cohnheim made the presence of albuminous urine depend on changes in the glomerular epithelium, and these would be difficult to see microscopically. There is, however, no mystery about the fact, which Dr. Cabot brings forth; it is simply that we cannot recognize the changes.

Dr. Emerson said that the Johns Hopkins Hospital reports of nephritis and albuminuria agree in the main with what Dr. Cabot has said. It is not true, however, that a knowledge of the percentage of albumin in urine, without a knowledge of the total amount, is of no value, for it has been shown that a kidney excreting a small percentage of albumin is in better condition than one excreting a large percentage, even if the total amount of albumin in the former urine is larger than in the latter.

Pericarditis with Effusion.—Dr. Thayer reported two cases of this affection. The first was a man aged twenty-five years, who had had a double pleurisy. A few weeks before he was seen by Dr. Thayer he had been attacked by dyspnea, pain over the heart, and a sudden feeling of faintness. When seen his pulse was 150 and there were marked signs of effusion into the pericardium. A needle was inserted and 1,250 c.c. of straw-colored fluid withdrawn, the pulse falling to normal and the symptoms disappearing. Three weeks later the

heart apex was in the fourth interspace 10 cm., from the middle line, and the absolute dulness was normal. Patient later developed tuberculous laryngitis. The second case was a man aged fifty-nine years, who was admitted to the Johns Hopkins Hospital *in extremis*. There was a large pericardial effusion, but no fluid could be obtained by tapping. 1,200 c.c. were removed at the autopsy table from the pericardial sac. There are three dangers in tapping the pericardium—puncture of the pleura, of the heart, or of the mammary vessels. These, however, amount to little, provided the tapping is carefully done. The question as to the best site for tapping has been much discussed. The places usually advised are, as a matter of fact, well fitted for reaching the heart, though usually chosen with the opposite end in view. Possibly the best plan is to tap at the point where the heart sounds cease to be heard, and so get below the effusion from which point good drainage may be possible. Dr. Cabot said that in his experience most pericardial taps were dry taps and that the successful ones had been those done outside the nipple line. Dr. McCrae said that he had had similar experience. Dr. Cole suggested that these cases be treated surgically from the start, and that free incision be made if necessary, so as to avoid danger of missing the fluid.

Dr. Bloodgood showed lantern slides of benign bone cysts, including the only case which has occurred in the Johns Hopkins Hospital.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

SECTION ON CLINICAL MEDICINE.

Stated Meeting, held Friday, December 4, 1903.

Anchylostomiasis.—The patient was introduced by Dr. A. D. Atkinson. A man, aged thirty-four years, who had traveled a good deal by sea and had come to Baltimore from the West Endies. He was admitted with fever, weakness and shortness of breath. On examination he was pale, with muddy sclerotics and injected eyes. The leucocytes were 11,600. Intracellular malarial parasites were found; but an eosinophilia (which had been suspected from the fresh blood examination, and was confirmed by differential count) led to careful examination of the stools, where eggs of *Anchylostoma* were found. Thymol and magnesia were given and the worms appeared in the stools in abundance. The case is still in the hospital, but has improved so much that eggs can only occasionally be found in the stools. The leucocytes averaged about 12,000 for the first six weeks, and an eosinophilia (5-11 per cent.) has always been present. Extensive poikilocytosis is also to be observed. The literature of anchylostomiasis has been extensive since the publication of Stiles' work, and it is probable that many of the cases have heretofore been called malaria. Stiles defines it as "a specific zoosporadic disease, occurring in dry, sandy regions, and caused by the hookworm." Its synonyms are Egyptian chlorosis, St. Gothard or tunnel anemia (from the fact that it was carried into Germany by workmen from the St. Gothard tunnel), brickmakers' anemia, miners' cachexia and mountain anemia. The chief symptoms are anemia, dyspnea, edema, colicky pains in the abdomen, and malaise. The disease was first fully described in Italy in 1843, but Stiles records its mention by a German clergyman as early as 1782. *Uncinariasis Americana* is, according to Stiles, a distinct species of the family *Strongyloides*. The differential diagnosis between the old and new world forms is made by definite morphological characteristics, the latter having a bipartite dorsal ray, and a dorsal conical tooth projecting into its buccal cavity. The eggs of *Anchylostoma* lodge in the intestinal tract and develop into adults only after escaping in the feces. The embryo has a characteristic bottle-shaped esophagus and lives in water or moist earth. At the fifth day the worm undergoes a second ecdysis, then infects the human being, and, after a third ecdysis, grows into the adult worm, with an esophagus capable of sucking blood. Anemia is always present. Hemoglobin in the various series of reported cases has averaged about 10-20 per cent., red blood cells about 2,000,000, and whites about 6,000. The anemia is not easy to explain. It is not always in proportion to the number of worms present and is probably not due to the sucking of blood by the parasites. Boycott and Haldane say that it is due to a hydremia, just like chlorosis. A toxin acting on blood or blood-organs has also been suggested as the cause, and the pathological liver changes, with the eosinophilia, seem to support this view. The pathology of anchylostomiasis shows itself in fatty kidneys and liver, catarrhal stomach, hemorrhages of ileum and jejunum, reddened and enlarged Peyer's patches, eosinophilic infiltrations in the intestines, and the bone marrow of pernicious anemia. Reddened areas appearing suddenly in the skin (the "bunches" of Cornwall miners) may be present and may lead to the so-called "ground-itch." The treatment consists of the administration of thymol in xx to xxx-grain dosage, followed by a purge, and repeated until the eggs appear in the stools. The prognosis is good in all but young and badly nourished children.

Pathological Specimens.—Dr. W. R. Stokes showed these. The first showed typical tuberculous areas in the epididymis. In this case incision had been made into an epididymitis and pus-containing tubercle bacilli, but no gonococci were found. The second specimen was of a fracture of the first rib. The injury had resulted from the patient's being jammed between two freight cars, and had been associated with a fracture of the clavicle and laceration of the stomach. No other ribs were broken. The specimens of two cases of acute endocarditis were also shown, both affecting the aortic and mitral valves. The last specimen was a cirrhotic liver taken from a patient seen in May, with a large palpable liver and a history of epistaxis. A diagnosis of alcoholic cirrhosis was made. At autopsy the liver showed typical atrophic cirrhosis and the granular kidneys of chronic interstitial nephritis. Several varices were found around the cardiac end of the stomach, which, when squeezed, showed several small punched-out ulcers. The stomach was full of blood and death had evidently been due to leakage from the ulcers below the dilated esophageal veins.

Dr. Blake said in reference to the second specimen shown that fracture of the first rib was very rare, except from bullet wounds or in extensive injuries, and he did not understand the mechanics of the occurrence of this fracture without other lesions.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held at the New York Academy of Medicine, December 14, 1903.

The President, Andrew H. Smith, M.D., in the Chair.

Water Anesthesia in Operations about the Rectum, Anus and Buttocks.—A paper on this subject was read by Dr. Samuel G. Gant. More than 150 cases of rectal affections radically operated upon by him had shown that sterile water, properly injected, is a reliable anesthetic; and he was convinced that this is the most desirable method for these operations, for the reason that it produces an adequate degree of anesthesia, while

in no instance has its employment been accompanied or followed by any of the annoying and dangerous complications frequently met with under the use of cocaine or similar drugs. He had been induced to try distention of the tissues with water to produce local anesthesia in consequence of the following observations: (1) Cocaine, eucaine and other similar solutions were practically inert when distention was not obtained, because of the escape of the fluid through an ulcer, fissure or sinus; (2) very weak solutions of the same drugs were apparently as effective as strong ones in all cases where complete distention of the tissues was possible. Among the cases in which Dr. Gant has successfully employed water anesthesia are included radical operations for protruding and non-protruding internal hemorrhoids, cutaneous and thrombotic hemorrhoids, polypi, prolapsus ani, fistulæ of various kinds, and marginal and follicular abscesses; excision of perineal cysts, sacral dermoids, and lipomata of the buttocks; removal of foreign bodies beneath the skin and mucosa; division of the sphincter in cases of constipation where divulsion proved ineffective; fixation of an elongated sigmoid to the anterior abdominal wall; colostomy and exploratory laparotomy.

Technic.—The only requirements are sterile water and a hypodermic syringe fitted with a long, fine, sharp-pointed needle, which, with the syringe itself, should be sterilized. When an incision through the skin is required, a fold of the integument at one extremity of the line of incision is compressed for a few seconds between the thumb and forefinger; this diminishes and prevents the momentary pain which may be caused by the first injection. The needle is then introduced between the layers of the skin, and a few drops of water slowly injected; immediately on the appearance of the small, localized swelling thus produced cutaneous anesthesia should occur at this point. Next, the needle is slowly inserted further and further along the line of the cut to be made, care being taken not to go entirely through the skin, and the water is gradually injected as before. When the syringe is emptied, it is refilled and the needle reintroduced within the anesthetized area; the injections being repeated until the distention extends the entire length of the line of incision. The needle is then plunged through this distended line and subcutaneous injections are rapidly made until a firm, whitish, ridge-like swelling, about the thickness of the index finger, is produced. The skin and underlying tissues can now be incised without pain in almost every instance. For external thrombotic hemorrhoids it is requisite to make the injection only between the layers of the skin overlying the clot to be removed, while in excising external cutaneous hemorrhoids both the skin and tumors should be distended tightly. Large internal venous or capillary hemorrhoids may be completely anesthetized within thirty seconds by injecting directly into the center of each tumor sufficient water to distend it tightly and cause it to turn white. Any affection which requires operative procedure to increase the lumen of the anal outlet, or which necessitates incision of the sphincter, may be operated upon under water anesthesia. After the skin and mucous structures up to the anal margin have been distended, injections are made into the mucosa, the submucosa, the external sphincter, and, if necessary, the internal sphincter muscle.

Advantages.—(1) In the majority of rectal operations there is no necessity of requiring the patient to submit to the annoyance and expense of entering a hospital and undergoing general anesthesia. (2) The rapid distention of the tissues to be incised or removed enables the operator to work quickly, and as the patient is not confined to bed during the after treatment, but can come to the office to be dressed, it economizes the surgeon's time and labor. (3) No annoying or dangerous complications or sequelæ have been observed. It eliminates the danger to life from the heart, lung and kidney complications, which may result from the use of ether or chloroform, and it avoids the increased pain and hemorrhage due to straining and vomiting after general anesthesia. (4) Experience has shown that the pain and bleeding following this method are less than when medicinal local anesthetics are employed. (5) The only requirements are a hypodermic syringe, a suitable needle, and boiled water. (6) The radical treatment of hemorrhoids can be so easily carried out in the physician's office, and with so little danger and inconvenience to the patient, that it should regulate to oblivion the vaunted injection treatment, which is so dangerous and uncertain.

Limitations.—This method is not practicable for extensive operations such as are required for excision of the coccyx, the removal of large tumors by excision, or resection of the bowel, or for the relief of complete prolapsus recti, complex, horseshoe, rectovesical, recto-urethral and rectovaginal fistulæ, very extensive abscesses, or strictures, congenital malformations, or other affections located in the upper rectum; neither is it applicable for opening the abdomen in cases where there is a thick layer of fat and the tissues are so loose and flabby that a proper degree of distention cannot be secured.

How it Acts.—As the anesthetization of the part occurs almost instantly upon complete distention of the tissues, it would seem probable that the anæsthesia is produced by the pressure upon the nerves and their endings caused by the distention. If the pressure is too quickly induced, however, by too rapidly injecting the water, it may cause considerable temporary discomfort, amounting to pain in extremely sensitive subjects.

The Puerpera: her Care and Comfort During Convalescence.—This was the title of a paper by Dr. A. Ernest Gallant. Assuming that labor has been conducted on aseptic lines, the perineum guarded or repaired, etc., what, he asked, could be done to prevent the muscular weakness and abdominal distention, with subsequent visceral ptosis, which so often compel women to seek relief? Frequently the patient, when she gets up out of bed, complains for some days of dizziness, vertigo and inability to walk, and some months later she begins to suffer from gastritis, headache and backache, with attacks of nausea, vomiting and pain, the latter usually referred to the right side. On an examination *with her clothing on*, we find a distinct change in the contour of the anterior abdominal wall—flattening from the sternum to the umbilicus and a bulging from that point to the symphysis—which is caused by prolapse (or dilatation) of the stomach, large and small intestine, often the right kidney (rarely the left), the liver and spleen—the enteroptosis of Glenard. In at least 50 per cent. of multiparæ seen by the gynecologist, there is found uterine displacement, due, in the author's opinion, to the dorsal posture while in bed, in consequence of which involution takes place with the uterus resting against the sacrum. In order to illustrate the prophylactic weakness which he advised, Dr. Gallant related a case in his practice. An abdominal binder was very tightly applied and was worn continuously by the patient while in bed and for two weeks following. For the relief of soreness she was given massage (lasting half an hour), and a weak alcohol bath daily for three days, and on the fourth, fifth and sixth day to these were added passive movements of the arms and legs. From the seventh day onward she was directed to raise and lower the trunk and legs alternately, and after getting out of bed to practise light calisthenics. In order to prevent the recurrence of a former uterine displacement she was ordered not to lie on her back, but on the side

or abdomen, and when the uterus had sunk down to the pelvic brim the vagina was filled with sterile gauze, which was changed every forty-eight hours. The tamponing was maintained for two weeks; when a well-fitting pessary was introduced. The patient got out of bed on the tenth day, and was able to walk about with freedom, stating that she felt much stronger than after her first confinement. Before she became pregnant with this second child she had developed a well-marked suprapubic prominence, and she was directed to secure a corset designed especially for the prevention and relief of visceral ptosis, but, owing to her good condition, she neglected to do so until six weeks after getting up, when she expressed herself as much surprised at the degree of comfort, support and improvement in her figure which it afforded her. In connection with the paper Dr. Gallant demonstrated the use of the corset referred to, and presented a specimen of post-partum tubo-ovarian abscess which caused hydronephrosis. The patient made a good recovery after operation.

Dr. Austin Flint, Jr., in discussing the essayist's paper, said that Dr. Gallant was rather radical in his recommendations; at the same time there was much truth in his position. Many accoucheurs, he believed, had observed great benefit from the patient's not lying always on the back, but personally he would not advocate a change of posture as early as Dr. Gallant. The assumption of the abdominal position did not seem to be required before such a time as the uterus could sag over backward. As to the exercise spoken of, he had had no experience, but he would be somewhat timorous about advising it. In the treatment of enteroptosis and movable kidney he objected to the use of a rigid corset, as it tended to prevent a free play of the muscles. He had had patients who got on better without corsets. He would substitute for them suitable exercises, not massage. Speaking of tamponing the vagina, he expressed the opinion that all women should be examined after childbirth a little earlier than was now customary —that is, between the fourth and sixth week, before the uterus becomes small, but after the lochia has entirely ceased and after the uterus has returned to position and regained tone. He was accustomed to employ large glycerin tampons, with either boric acid or tannin. A pessary might or might not be required.

Prevention Rather than Treatment.—Dr. Edward A. Ayers said he felt disposed to consider the means of preventing subinvolution and displacements, rather than their treatment. He believed that one of the most frequent causes of such evils was the incorrect use of the forceps. There are, in fact, very few cases in which the forceps was required, and it was no doubt an error in obstetrical teaching to advocate their too general employment. If the instrument was applied when there was incomplete dilatation of the lower segment of the uterus, and traction was made in such a condition, the practical result was the dragging down of the uterus. Consequently, there was great relaxation and a marked tendency to prolapsus. We should, therefore, be extremely cautious in all such work, and pains should be taken to secure dilatation of the lower uterine segment by the use of the hand before applying the forceps. No fixed rules could be set down, he thought, as regards the general care of the puerpera. In some cases she ought to sit up early, and in others not. A relaxed condition of the abdominal wall might be due to the anemia existing during pregnancy.

How Long Should the Patient be Kept in Bed?—Dr. Eugene Coleman Savidge said that he would respond briefly on one point of the many covered by the paper of the evening, namely, as to how long a woman should be kept in bed after childbirth. His views represented an evolution. When he was interne at the Sloane Maternity the rule was to put the infant in the mother's arms and send her out on the tenth or eleventh day, and, as in the case of all institutional procedure, to the young interne that seemed the proper thing. When he afterward worked in the female out-patient department of Roosevelt Hospital across the street, and got so many of these Sloane cases with retroversion and prolapse, he took the view that three to four weeks in bed after childbirth was the proper rule. He remembered discussing the matter with Dr. Tucker of the Sloane at that time. He believed that now the rule at the Sloane was to keep the patients much longer. When, later, he began studying the relation of muscular relaxation to general enteroptosis, retroversion, prolapse, he reached a conviction that seemed contradictory at first: Too short a period was wrong, and too long a period was wrong. What, then, the alternative? Not to allow a woman to walk about with a subinvoluted womb, and yet not to keep her confined at the expense of the general muscular system. He believed the solution was in permitting an early rising from childbed, say ten days, and then a routine tamponing under the heavy uterus from stopping of the lochia until the time of complete involution, seeing to it that the woman held her tone in the vasomotor and muscular systems. Once tried, the women themselves are the best advocates of this plan. The speaker further said that if "consistency was the foible of the little mind," it was a good characteristic to discard in the face of new light.

Dr. H. P. De Forest said he had understood that the subject to be discussed was the care of the normal puerpera. It had not been his experience that all women required treatment on account of abnormal conditions. In fact, most women seemed to get along pretty well after childbirth. He had studied under two men whom he considered masters in obstetrics, King, of Washington, and Tucker, of New York, and had always tried to follow in their footsteps. He believed that the nearer we approached to nature the better would be the results secured. In normal cases he did not think it necessary to tampon the patient. It was advantageous for the woman, he thought, to assume within a few days other positions than the dorsal, and if she would lie for a considerable portion of the time on the abdomen, the uterus would fall forward. As to pathological conditions, he believed with Dr. Ayers that the high forceps used before sufficient dilatation did as much to cause subsequent trouble as the labor itself; it was necessary, therefore, that we should make a pretty full dilation of the birth course. In order to avoid bad results the woman should be watched and attended very carefully after childbirth, and he was in the habit of furnishing to his patients a complete memorandum of the supplies which might be needed during the puerperium.

Each Case to be Treated According to the Existing Conditions.—Dr. Franklin A. Dorman thought the paper and discussion were not strictly in accordance with the title announced. As to faulty involution, the size of the uterus varied considerably in different instances, and every careful physician should examine the extent of the involution from day to day. Every case should be judged by itself, and it was well to remember that the process of involution depends to some extent on previous pregnancies. If there had been injuries, such as lacerations, it would be very apt to be retarded thereby. He agreed with Dr. Flint that when the uterus had sunk absolutely within the pelvis, and not before, was the time when displacements were to be guarded against. The patient should be allowed to move from side to side, as she felt inclined. The binder seemed to be injurious after the first three or four days, and might tend to produce retroversion.

Two Prophylactic Measures.—Dr. James D. Voorhees spoke of two prophylactic measures against subinvolution. The idea was always in the mind of the accoucheur of letting out the head, if possible, without a nick or laceration of the perineum, while no attention was paid to the *levator ani* muscles. These might be torn, and as nothing was done to remedy the evil, undesirable results might follow. Mucous membrane tears were also apt to be neglected, and these should be carefully repaired. He thought the management of the uterus itself important. The physician should be absolutely sure when he left the case that no clots were left behind in it. In the main he agreed with the ideas of Dr. Gallant, but he had had no experience with the corset.

Patients Should be Cautioned against Over-exertion after Getting Up.—It was important, he thought, that the patient should be cautioned against doing too much, or too soon, after she was up and about. Many physicians were careless in regard to this point, and he had known of various instances in which women had blamed their medical attendants for uterine troubles attributed to the fact that they had been allowed to play golf or take other active exercise too soon.

Dr. Samuel M. Brickner thought injury was likely to result from the use of the binder after the third or fourth day. He had never tried exercises while the patient was still in bed, but he had had some experience with the corset. He desired to call attention to two points: (1) It not infrequently happens that the patient is unable to urinate spontaneously while lying in bed, and as it is manifestly impossible for the physician to be present whenever it is necessary to pass the catheter, this duty devolves upon the nurse. Even the best of our trained nurses are not too conscientious about the disinfection of their hands, and most nurses are prone to be very careless in regard to the matter. In consequence of a somewhat unfortunate experience on this point he now insisted that the nurse should invariably wear gloves when catheterizing the patient. (2) The patient should be permitted to lie on the side very soon, and after six or seven days the abdominal posture should be advised. It should be the constant aim of the accoucheur to restore the puerpera to the sound, normal condition in which she had been before the pregnancy.

Dr. Gallant, in closing the discussion, said that the time to prevent a thing is to prevent it when it begins. The necessity of catheterization may be avoided by permitting the patient to get out of bed to urinate. No trouble will result, and there will then be no danger of cystitis from the catheter or the nurse. As regards Dr. Flint's criticism, he thought means should be adopted early to prevent the uterus from sagging backward, for unless this was done the organ was apt to acquire the habit, so to speak. If we place the patient on the abdomen it is not necessary to tampon so early. As regards the Sloane Maternity patients frequently having to come to the Roosevelt Clinic, as mentioned by Dr. Savidge, he believed that the troubles referred to were not the result of the women getting up too soon, but were due to the fact that they were not in good condition before labor.

The Value of Blood Counts in Very Young Children.—In an article on the practical value of blood counts, W. Gordon (Bristol Med. Chir. Jour., Sept., 1903) notes that in very young children severe anemia may result from trifling causes; that leucocytosis may also result from slight causes, and is apt to be a lymphocytosis; that the spleen is apt to enlarge in any severe anemia; that nucleated red blood cells are more commonly found than in adults; that hereditary syphilis and rickets cause some of the severest anemias.

THE NEW YORK ACADEMY OF MEDICINE.

Section on Genito-Urinary Diseases.

Stated Meeting, held Thursday, December 17, 1903.

The President, Andrew H. Smith, M.D., in the Chair.

Symposium on the Treatment of Hypertrophy of the Prostate.

When and How Shall We Operate for the Relief of Symptoms Due to Senile Hypertrophy of the Prostate.—Dr. Paul Thorndike, of Boston, read this paper, which will be published in a subsequent issue of the Medical News.

The Best Method of Operating to Effect a Radical Cure of Senile Hypertrophy of the Prostate Gland, Based on a Study of 141 Radical Operations.—Dr. Orville Horwitz, of Philadelphia, read this paper and, from a review of the results obtained, believed the following deductions were justifiable: (1) A routine method is not applicable to the treatment of prostatic hypertrophy; every case is a law unto itself and the treatment will depend on the various conditions presented in each individual case. (2) The dangers attendant on the daily catheterism are greater than those of a radical operation performed at the onset of the symptoms caused by the obstruction. (3) The proper time to perform a radical operation is reached as soon as it becomes necessary for a patient to resort to daily catheterism. (4) The gratifying results obtained by a number of the operations in many cases demonstrates that the Bottini operation is one of great value. It is applicable to a large percentage of cases; which, if properly selected has proved to be the safest and best method of relieving an obstruction caused by prostatic hypertrophy. In those cases in which a stone in the bladder is associated with a prostatic enlargement, litholopaxy may be performed in conjunction with a galvanocautery prostatectomy. (5) A complete prostatectomy is justifiable if performed early before the individual is broken down in health and secondary complications have supervened. In early operation the results are most satisfactory, recovery rapid, and mortality varying between five per cent. and seven per cent. (6) A complete prostatectomy in feeble elderly patients with long-standing obstruction and secondary complication, the prognosis is grave and the mortality ranges between fifteen per cent. and eighteen per cent. If the bladder in these cases happen to be hopelessly disabled, the results obtained by the operation are negative. Cases of this description are only suitable for suprapubic drainage. (7) In ninety per cent. of all cases the gland can readily be removed by means of a median perineal incision. The perineal operation recommended by Bryson is considered the operation of choice. (8) Complete suprapubic prostatectomy is shown to be more dangerous than perineal operation for obvious reasons. A suprapubic prostatectomy is safer if combined with perineal drainage. (9) Partial suprapubic prostatectomy is indicated in such cases as where a valve-like lobe exists which interferes with urination, or where there is a partial hypertrophy of one of the lobes. (10) A perineal prostatectomy is best suited for those cases where the enlargement of a lateral lobe has a tendency to progress towards the rectum, to obstruct the urethra, or project backward into the bladder. (11) A prostatectomy is always attended with more danger than the Bottini operation and the convalescence is more prolonged. In suitable cases the latter operation is therefore the one of choice.

Dr. L. Bolton Bangs said the subject was a very complex one. Any one with much experience with old men would be obliged to make a broad discrimination between classes that were denominated "hospital classes" and those that were well-to-do and intelligent.

In the former, from want of intelligence or opportunity for cleanliness, one was unable to carry out palliative methods and, therefore, something radical in the way of treatment must be chosen. To him the question of operation was not so difficult as to decide when and upon whom to operate. He believed that the primary retention was not a sufficient indication for the radical treatment of the individual. There are men in whom catheter life has been established, who have had more than one attack of retention whose urine shows scarcely any infection, whose residual urine is moderate in amount (five ounces or less), and whose nocturnal urination is rarely over twice, usually once. Such a patient, using the catheter once, twice, possibly three times in the 24 hours, may go on year after year and the residual urine may become reduced from four or five ounces to one ounce, and the patient really improved in all respects by appropriate treatment. A patient had reported at his office that very day who, four or five years ago, had had five ounces of residual urine; he now had only one ounce. He passes his catheter to treat his bladder only once a week and "lest he forget" he passes it every Sunday. If he had not observed such cases before he believed he would have immediately advised some form of radical relief when the patient first consulted him. Therefore, he believed that each case should be studied by itself. These individuals should not be hurried or urged into operation even when the conditions led to a vague fear or dread of trouble in the future. One should see to it that they be kept resolutely and positively under observation in order that the golden moment for operative intervention should not be lost. A careful diagnosis must be made. He did not think that every man with nocturnal frequency of urination, and with a small amount of residual urine, should be considered a subject of organic progressive enlargement of the prostate. Recently in reviewing some cases in the literature he found one patient who had been subjected to prostatectomy, in whom there had been frequent and painful urination, some blood, only *two* drams of residual urine and a stone in the bladder. He said this was not careful diagnosis; if the right deduction had been made and the stone alone removed, he ventured to say that the symptoms would have disappeared and the residual urine with them. Again, he said that many men, particularly among the higher classes, approaching sixty years of age, with habits of high living, abundance of champagne and frequent sexual indulgences, present themselves with a moderate amount of nocturnal frequency and of residual urine; these men need neither catheter life nor radical operation. Here there would be found engorgement of the prostate or prostatitis, and under good hygienic living, with regulation of their habits, particularly as to the use of alcohol, tobacco, coffee, exercise and sexual relations, the residual urine would disappear and there would be no necessity for either the catheter or radical operation. He had had experience with prostatectomy and with the Bottini method and was inclined to agree with Dr. Thorndike that perineal prostatectomy in properly selected cases was the operation of choice. One could not ignore the experiences and results that have been obtained by the Bottini method which certainly was applicable to a certain class of cases. The choice of operation must be determined upon the merits of the case itself. As a result of his experience he believed there was a class of cases which would be greatly relieved and, in some, positively cured, by this method and with a minimum of risk. Regarding the mechanical performance of the operation he said that the Bottini operation required more skill than the operation of prostatectomy. The latter was within both the sight and touch of the operator, and if one stripped back the capsule of the prostate with the rectum as suggested by Murphy, there would be less danger than ever of injuring the rectum. The Bottini method required tactile dexterity and experience in order to do it properly. Regarding subsequent events he did not think enough stress had been laid upon the conditions which might follow these radical operations. He said he had seen patients with a small amount of residual urine who were moderately comfortable with the catheter and others who did not need the catheter. Subsequent to his examination they had been subjected to prostatectomy and been made miserable for life, either by permanent incontinence of urine, by loss of the sexual function or by permanent fistulæ. When we suggest to a patient whatever we deem necessary for his cure or relief, he said, we should bear in mind and tell him the possibilities. He had rarely found permanent incontinence follow the Bottini operation. Thinking over the suggestion made by Dr. Murphy, of Chicago, it is possible that permanent incontinence is due to the fact that the prostatic urethra had been dilated and had formed a secondary pouch into which the urine found its way and from there dribbled. Dr. Murphy suggested that during a perineal prostatectomy a part of the prostatic urethra should be excised and the edges brought together, thus reducing the size of the dilated part.

Dr. Willy Meyer said he had listened with great interest to the most valuable papers presented by the guests. They had covered the ground so thoroughly that he was sure every one in the audience was able, from what he had heard, to form a proper conception of the present status of prostatic surgery. What he thought was expected of those who had been requested to participate in the discussion, was, to state their views on basis of their personal experience in the treatment of this frequent and often so terrible disease of men. He said he was of the opinion that prostatectomy was the most surgical and the most radical operation, in short, that it was the ideal treatment of prostatic enlargement. If it be true, and we know that *it is*, that the trouble of a prostatic was a mechanical one, that the obstruction caused by the gland was doing all the mischief, then it stands to reason that the total removal of such tissue represented the best cure. Thanks to the arduous labors of many of our colleagues the technic of the operation had been perfected to such a point that they were enabled, in most cases, to avoid future complications. The procedure was, therefore, a comparatively safe one. To-day he advised prostatectomy wherever he found no contraindications, and had personally done the operation, by the perineal route, in nine cases; in eight during the last year. He found it the typical and safe operation which his former experience with operations on the prostate by this route, *i.e.*, opening prostatic abscesses on antiseptic principles, removing a tuberculous sequestrum from the prostate, and other operations upon the organ that had become chronically inflamed by gonorrheic infection, had taught him to consider it. As regards the age at which prostatectomy may be safely advised, he had considerably extended the limit, in fact, he believed there was no limit. So long as the patient's *general condition* warranted it, they need not hesitate about advising the operation. In cases where general anesthesia did not seem safe, he used spinal anesthesia, for which latter prostatic surgery he believed furnished a great field, especially in old patients. Its availableness will certainly tend to widen the indication for prostatectomy. In one of his patients, operated upon in November, 1902, spinal anesthesia afforded him ample time for the enucleation of the prostate and the extraction of a large calculus from the bladder. The patient was presented,

cured, before the New York Surgical Society, in January last. In his last case he used Dr. Young's metal retractor and was delighted with it. It was simple and clean, and was of great help to him. It permitted of any amount of traction, enabled the operator to avoid injuring the urethra and ejaculatory ducts and, incidentally, rendered excellent service as a hemostatic, by compression. Still, it must be said that not every prostate could be pulled down by a retractor into the level of the skin wound. He had also always incised the capsule of each lateral lobe by a vertical incision and tried to preserve what Young called the "ejaculatory bridge." Yet, important as he considered this point of keeping absolutely intact the prostatic urethra and important organs at the vesical neck, he did not believe that the preservation of this bridge alone would always determine the future maintenance of erection. Innervation also played a rôle. Further observation would have to determine this point. At all events, prostatectomy must be regarded as the operation of choice. On the other hand, they must give due recognition to the fact that there are cases in which the cutting operation was absolutely refused, or where special circumstances were present, rendering it contraindicated. It was here that Bottini's operation filled its mission. The gentlemen who recognized prostatectomy only, would, in such cases, condemn the patient to the use of the catheter for life, or insist upon the bloody operation, and thus might take the life of patients who might well have been saved by means of Bottini's operation. He had recently tabulated his cases of enlarged prostate treated by Bottini's operation within the last five years (October, 1897, till October, 1902), 59 in number. He was able to trace 34. Of these 28, or 82.4 per cent. were cured or materially benefited; and of fifteen patients who had used the catheter regularly, 10, or 66 per cent., laid the same aside permanently. Of 23 cases that could be utilized with reference to the question of the maintenance of sexual power after Bottini's operation, the power of intercourse was preserved in 20, or 86.9 per cent. It was more or less interfered with in three. Has such an operation not its place in prostatic surgery? Does it deserve to be cast aside as worthless, as is done by so many who have never tried it or perhaps tried it once? He would be sorry if in this progressive country the truth with regard to the value and place of Bottini's operation should not be fully recognized. He was much interested in hearing Drs. Thorndike and Horwitz state their opinions with reference to Bottini's operation in such an impartial way. He said there were two useful methods for helping prostatics, and the profession has no right to speak of prostatotomy *versus* prostatectomy, but ought to say that it has prostatectomy *and* galvanocaustic prostatotomy. For these two methods do not oppose, but complement each other in the radical treatment of the enlarged prostate gland.

Dr. Chetwood said that the history of the surgery of the prostate gland of ten or fifteen years ago described the same operations, generally speaking, as were performed to-day, even the special technic of galvanocauterization. The same questions were under discussion then, but with less knowledge, between suprapubic and perineal operation: and this same discussion had continued ever since. The result of this long-continued discussion of the subject had been beneficial, and there were probably many surgeons to-day and there will be more in future, who would take neither side of this question, and who believed that most of the operations for prostatic hypertrophy had value, and the choice of technic was a question to be decided upon the individual peculiarities of each case. With such ample support as the operations of suprapubic and perineal prostatectomy had, there was no need of any additional testimony in their favor. He said he had particularly to speak of his own predilection for the use of the galvanocautery in prostatic surgery and, in connection with it, adequate vesical drainage. While he had a strong belief in the value of this method, he thought that its use should be combined with an opening into the bladder, not only for drainage, but for examination before and after operation. The Bottini technic had proven satisfactory in a fair number of cases, especially in the hands of such adroit operators as Dr. Willy Meyer and Dr. Young; yet he felt that the great advantage of drainage through an opening into the bladder, and of determining accurately the nature and size of the growth and the result of the incision was superior to any that may be claimed for an operation which avoided incision. He also would raise his voice in opposition to the practice of extirpating the entire prostate gland when only a very small portion of it was at fault in the causation of symptoms, when it had been so frequently demonstrated that the removal of only the portion of the gland which obstructed the bladder outlet was sufficient to bring relief from symptoms. There had occurred undoubtedly unfortunate results due to the too free removal of the prostate during operation, such as recto-urethral fistula, several cases of which he was personally familiar with, and urinary incontinence. It was fair to state that if these complications occurred they were more likely after extensive removal of tissue. He was not committed to the galvanocautery operation by the perineal route, although most of his cases had been done in this manner. A number of cases could be better reached through a suprapubic opening, and the use of the galvanocautery through this route had decided advantages in some instances, notably those with long urethra and deep perineum. He said he had had constructed a special instrument, upon the same lines as his perineal incisor, for use through the suprapubic opening. If the special technic of galvanocauterization, either with or without an opening in the bladder, lessened the danger of operation in any stage of prostatic enlargement and aided in settling the question *when* to operate, it must be given a position of high esteem in prostatic surgery. Personally, he believed that incision into the bladder enhanced the value of galvanocauterization and minimized the danger of operation.

Dr. Hugh H. Young, of Baltimore, said that in pursuance to the request of the chairman he had tabulated his operative cases which he found were now about 150 in number, divided as follows: prostatectomies, 55; Bottini's, 85; castrations, 2; various operations, 8. Castration had been performed twice, under cocaine, in men who were very old and feeble, and in whom the prostate, although very large, did not offer obstruction to urination, but caused severe pain in the rectum, buttocks and thighs by pressure against the nerve trunks situated in the deeper portion of the pelvis. In one case the result was almost magical, the prostate atrophied and the sciatica and other pains, which had been very severe, promptly disappeared. In the other, the prostate proved to be carcinomatous, and there was no result. Of the 85 patients on whom the Bottini operation was performed six died, three as a result of the operation, and three from other causes three to six weeks after the operation. Of those that lived, in two cases no benefit was obtained, in two cases micturition was restored, but the catheter was necessary twice a day on account of a large residual urine. In four cases there was more or less incontinence of urine. Two cases recovered from this after six months. In five cases, with middle lobe enlargement, Dr. Young

operated by a method described by him in 1900, the cautery incision being made obliquely on each side of the median lobe, thus cutting off its blood supply and leading to its rapid atrophy with excellent results. In a number of cases the prostate was of the small sclerotic variety and it was necessary to use the small blade of his modified instrument with multiple blades, but in most cases either blade No. 2 or No. 3 was found the most suitable. As a whole, the results of the Bottini operations were extremely satisfactory, and in a class of patients often very old and weak, the majority being over seventy years, and five were over eighty years of age. Several patients who had used the catheter for from seven to fourteen years gave up its use altogether. In about one-third of the cases calculus was present, and lithopaxy necessary, both operations being done under local cocaine anesthesia. The operation was never done without having previously mapped out with the cystoscope the nature of the intravesical prostatic outgrowths, a procedure which he considered very important in determining the character of the operation, the choice of blades and position and length of the cuts, the presence of calculi, etc. In two cases only was there any serious hemorrhage subsequent to the operation, one came on after six weeks and the other a year later. In the latter case, although the prostate projected into the bladder as two huge intravesical tumors, the result of the operation had been perfect, there being no residual urine present. A perineal prostatectomy was done on account of the hemorrhage. Another case was that of a man seventy-eight years of age who was brought into the hospital with complete retention of urine and in uremic coma. The urine was very foul and contained granular casts and albumin in large amount. He was treated by catheterization, and blood letting, intravenous, subcutaneous and rectal saline infusions, and after being at death's door for a month was finally operated upon by the electrocautery and is now, two years later, well and about town. It is in cases such as the latter that it is doubtful if any other procedure is as safe and sure as the Bottini, and it was not in these cases in which the few failures and fatalities resulted from the operation. But the presence of the occasional failures shows that perineal prostatectomy is the more certain procedure and therefore to be chosen in many cases. The prostatectomy cases were as follows: Sixteen by the suprapubic route with three deaths—only one attributable to the operation. Thirty-six by the perineal route without a death attributable to the operation (one occurring from embolism when the patient was cured and almost ready to leave the hospital not being counted). In three of the perineal cases the combined operation of Alexander had been used, but the suprapubic incision which was deemed necessary to push the prostate down into the perineal wound, so that it could be reached for enucleation below was always objectionable. The rubber balloon tractor of Dr. Parker Sims had been a step in the right direction, the object being to pull the prostate into the perineal wound. Dr. Young had devised a tractor of metal which seems to answer every purpose, and the 33 last perineal prostatectomies had been operated by this instrument, and according to a technic recently published by him.* He believed that we now receive our patients in much better condition than formerly, since practitioners are realizing the importance of curing these cases early and avoiding infection and its train of sequelæ, and he personally had many cases demanding operation in men between forty-five and sixty years, in robust physical and sexual condition, and it had seemed highly advisable to preserve their sexual powers if possible, and by the technic which he practised he was able to preserve in its entirety the prostatic urethra and the ejaculatory ducts in the great majority of cases, as shown by the subsequent presence of spermatozoa on ejaculation. It was not necessary to do an extensive dissecting operation—the central perineal tendon and the small recto-urethralis muscle were the only muscular structures divided and both insignificant. With good retraction of the wound it was not necessary to divide important structures and with his metal tractor drawing the prostate down the entire posterior surface was so close to the skin surface that it was an easy matter to make the incisions so as to leave a median bridge of tissue which contains the ejaculatory ducts and to enucleate the lateral lobes without injury of these or the urethra. After this, if a middle lobe were present, it was an easy matter to rotate the tractor 90 degrees, engage the median lobe and deliver it into the left lateral cavity, where it could be easily enucleated, generally without injuring the vesical mucous membrane covering it. Even in cases with huge intravesical outgrowths of the prostate it was possible to remove them by the perineum. By means of the tractor large projections of the lateral or middle lobes could be caught, drawn downward and enucleated through the perineum. In a recent case, aged eighty-two years, the prostate filled the bladder and presented above the pubes as big as an orange, and the weight was 250 grams. Spinal anesthesia by the method of Morton was used, and had been found so satisfactory in the past three months that he advised its use in all patients in which ether was contra-indicated either from age or other conditions. One-fourth of a grain of dry sterile cocaine dissolved in the spinal fluid in the syringe sufficed for nearly all cases, and made the operation possible in cases where general anesthesia would have been dangerous, as shown by Goodfellow. Bryson's method of making an extravesical suprapubic incision was not longer necessary, since it was possible by means of a perineal tractor to deliver the lobes into the perineal wound. Suprapubic prostatectomy provided poor drainage and had proved more bloody, more in the dark and much longer in convalescence. He believed that very old men who had learned to use the catheter well and were comfortable should not be disturbed. But when a patient presented himself with a healthy bladder and was in fit shape for a radical cure—prostatectomy or Bottini—he could not agree with Dr. Thorndike that such a patient should be given a catheter to use, and that the radical operations should apply only when the catheter had failed. Continued catheterization invariably led to infection, which an early prostatectomy could have prevented, but a late one could never cure. Taken early, perineal prostatectomy was a very benign procedure, and should be performed carefully and conservatively, with due regard to the urethra and the ejaculatory ducts.

Dr. Howard Lilienthal said that his experience in these cases was limited to 19 patients upon whom suprapubic prostatectomy had been performed. Out of the 19 cases he had had but one death, and this patient was uremic at the time of operation. It was his opinion that a technical error had been committed in performing an operation under such circumstances, although the indication was concurred in by very competent counsel. The patient was aphasic, the urine contained a low percentage of urea, there was arteriosclerosis. He considered that he was an extremely bad risk for any kind of an operation. Dr. Lilienthal wished to speak in favor of the suprapubic prostatectomy. Out of 19 operations the patients recovered with perfect function in 18—a very good showing. He thought a

*Journal of the American Medical Association, Oct. 26, 1903.

great deal depended upon the individual who performed the operation, and, with the results he had obtained, he saw no reason for making a change in his method. Among the advantages of the suprapubic route he referred to (1) speed; this he considered a very important factor, especially in old people. It stood to reason that an operation which required but eight minutes was a much safer one than that which required one-half an hour or longer. (2) The incision was made through unimportant structures, through the skin and fascia, the median tendon of the abdomen, and through the bladder. (3) This gave the best opportunity for exploring the interior of the bladder. Sacculation of the bladder with its important prognostic import could be discovered after the suprapubic incision. In three of his cases stone had been found. He had had serious hemorrhages in 2 out of the 19 cases. In one of these he had started to do perineal prostatectomy when a tremendous hemorrhage occurred, similar to those which had on other occasions in this individual, followed faulty catheterization from injury to the bulb. He abandoned that route for the suprapubic one and the patient made a very good recovery. He believed hemorrhages from the bladder itself could be checked by packing the sac which the prostate had occupied. In reviewing his method he stated that with the catheter in the bladder and an atomized bulb attached a median incision through the linea alba was made. The organ was then distended, being pumped full of air. The bladder was then opened with a small puncture with a knife; this opening was stretched with dressing forceps sufficient to admit two fingers. The bladder was then explored thoroughly and carefully and enucleation of the prostate followed in the customary manner, after incising the prostatic mucosa. He said these patients suffered from no shock after this procedure. His patients varied from fifty-two to eighty years of age and all made good recoveries. The most feeble ones he had had out of bed on the third day. He used siphon drainage. As another advantage he said that the bladder by its adhesions to the suprapubic scar drained in such a manner that, even if one did not take out the prostate, the pouch behind the enlarged prostate was rendered more shallow and emptying of the bladder more perfect.

Dr. Alexander B. Johnson said that his own experience in the radical operative treatment of prostatic hypertrophy had been confined to the perineal operation, and his results had been very satisfactory, a large proportion of the cases having survived the operation and being practically cured, the residual urine being very trivial in quantity and his patients suffering from very few of the symptoms of cystitis, perhaps none at all. In each case there had been a marked diminution, or entire abolishment, of the sexual functions. He preferred the perineal route chiefly because he thought that drainage was more easily accomplished and much more satisfactory. As to the question of what proportion of cases coming to surgeons for the relief of symptoms produced by prostatic hypertrophy should be recommended for operation and under what conditions he did not think was a question readily answered in a few words. He believed though that a considerable proportion of the cases of hypertrophy of the prostate occurring in individuals among the more intelligent and comfortable walks of life could be treated very satisfactorily, and for a long time, by means of the catheter. He would not recommend an individual suffering from marked senile degenerations to undergo the perineal or other kinds of prostatectomy. Such cases, he said, were attended by a large mortality rate. But, in those cases which came to him with only a moderate amount of cystitis, with kidneys in fairly good condition, with good lungs and arteries and a good heart, even though they be more than sixty years old, he considered that an operation could be performed with good prospects of relieving the symptoms. He said he had had only a very limited experience with the galvanocautery or the Bottini operation. The experience of his colleagues in the city might prejudice one, so he believed, against it when it first came out.

Dr. Parker Syms said that the radical treatment of prostatic obstruction to urination was undoubtedly the most important question before surgeons to-day. Its operative methods have passed through a complete evolution during the past decade.

He emphasized the dangers of catheter life in this class of patients, and said when they had to resort to the catheter for urination the death rate was practically 100 per cent. His own experience in this line had been quite active during the past few years, and he had operated upon 29 patients. During this period he had also been consulted by a little over 40 patients who had not submitted to operation. To his knowledge more than 50 per cent. of those who refused to submit to operation had died. Among his operated cases he had operated upon 23 without a death, but lost his twenty-fourth case. This patient died apparently from the effect of general anesthesia. The patients who recovered did so without any untoward complications. In regard to the Bottini operation he said he was willing to assume the responsibility of condemning that operation without having had personal experience with it. The Bottini operation was exploited nearly thirty years ago, was thoroughly tested and was universally abandoned because it had proved a failure. Personally he objects to it because it is an unsurgical and unscientific procedure; it is not radically curative, except in a small proportion of cases, and instead of being a safe procedure as claimed by its advocates, it is a dangerous one. Statistics show it to be far more dangerous than perineal prostatectomy. There are three things that he has inveighed against in this connection, one is cystoscopy in these cases of prostatic obstruction, and the other two are the Bottini operation and the suprapubic route for prostatectomy. He likened the suprapubic route to the prostate, to the occipital route to the tonsil. A year and a half ago his friend, Dr. Young, was an advocate of the Bottini method and of suprapubic prostatectomy, and Dr. Young had invited Dr. Syms to visit Baltimore and become a convert to these methods, but he, on the other hand, had promised Dr. Young to visit Baltimore and see Dr. Young performing perineal prostatectomy in preference to the other two methods; he is glad that his prophesy has come true and that Dr. Young is to-day an ardent advocate of perineal prostatectomy. He called attention to the fact that the operation described by Young is practically the one devised by Proust and Albaron, of Paris, they employing almost the same incision and method including the double-bladed tractor. In concluding, he reiterated his opinion that perineal prostatectomy is the safest of all procedures for the relief of prostatic obstruction. In support of this opinion he quoted the statistics of Young, the excellence of whose work is acknowledged by all. Young's cases show about 7 per cent. mortality for the Bottini operation, and nearly 20 per cent. mortality for the suprapubic operation, and practically no mortality for the perineal route.

Dr. Paul Thorndike, of Boston, said that in spite of what had been said in criticism of the catheter, he still claimed for it a place in the treatment of these cases. He hoped the gentlemen realized how large a part in the development of the technic of prostatectomy had

been taken by Dr. Samuel Alexander, of New York City. Eight years ago, he said, when they were all doing suprapubic work, Dr. Alexander began the advocacy of the perineal route, which was then receiving scant attention from the rest of the men in the East, although Dr. Goodbody was having success with it in the West. Since then the perineal route had proved to be the one along which Dr. Thorndike believed that Dr. Alexander's persistent advocacy of this method of operating had played no small part in the rapid development of prostatectomy.

Dr. Orville Horwitz, in closing the discussion, remarked that his paper had embraced most of the questions that had been brought out by the different speakers; and as the hour was late he would occupy but a few minutes in closing the debate. He agreed with Dr. Thorndike that anesthetics were frequently a source of great danger; especially in old and feeble patients. He had found, however, most satisfaction from the administration of chloroform and oxygen given by means of a special apparatus devised for the purpose. He coincided with Dr. Young in the belief that in certain selected cases the application of a spinal anesthesia was the best method to be adopted. He had seen dribbling of urine follow either a Bottini operation or a prostatectomy with the difference that when the condition supervened after the former operation, it is temporary, while in the latter it is usually permanent. Regarding the perineal galvanocautery operation, advocated by Dr. Chetwood, he did not doubt that it might be of service in some special cases; but in 93 operations of the kind performed by him he had never found it necessary to resort to the perineal incision. It is believed that the simple technic recommended by Bryson for performing perineal prostatectomy offered many advantages over other methods, which might be briefly summarized as follows: (1) Only a short time is required in order to remove the gland, which is a great advantage in cases of old people; (2) experience has shown that in 90 per cent. of cases the prostate gland can be safely removed by means of a median perineal incision; (3) no special instruments are required in order to perform the operation; and there is much less danger of the formation of a recto-urethral fistula. It was not believed that a hypertrophied prostate gland can be removed without disturbance of the ejaculatory ducts. The interference with, or removal of the ducts, has no bearing whatever on the production of impotence, as it has been frequently observed that in chronic inflammatory conditions of the posterior urethra the ejaculatory ducts are obliterated; besides, there are many cases on record where there has been a congenital absence of the epididymis and vas deferens, these structures having been frequently resected in diseased conditions giving rise to sterility, but not to impotence. The claim made by the gentleman who advocates the performance of suprapubic prostatectomy, that he had performed the method frequently, and was not familiar with the operation by the perineal route, does not appear as altogether a logical reason for adopting a method which has been found to be much more dangerous and less satisfactory than the removal of the gland by means of the perineum. The surgeon who desires to do the best work must be prepared to select from his experience and knowledge the operation which is best suited for each individual case, and must be able to perform with equal skill and dexterity any of the various manipulations which may be required.

Quarantine for Consumptives in Australia.—The Board of Health of Sydney has decided to treat consumption as an infectious disease and to isolate all cases.

BOOK REVIEWS.

THE AMERICAN POCKET MEDICAL DICTIONARY. Edited by W. A. NEWMAN DORLAND, M.D., Assistant Obstetrician to the Hospital of the University of Pennsylvania. W. B. Saunders & Co., New York, Philadelphia and London.

THIS attractive little volume appears in a new edition in a surprisingly short time after its predecessor. This argues well for its popularity, which appears to be well deserved. Several thousand new words are said to have been added and the work brought fully up to date, but we find that most of the terms announcing the recent investigations on immunity and allied subjects, such as amboceptor, receptor, complement, toxon, precipitin, hemology, etc., are not given, an omission of consequence, since these words are beginning to appear in the literature and their meanings are not apparent to those who see them for the first time.

TRANSACTIONS OF THE AMERICAN PEDIATRIC SOCIETY. Fourteenth Session, held at Boston, May 26, 27, and 28, 1902, with addenda from the Thirteenth Session, and an Index. Vols. I-XIV, inclusive. Edited by WALTER LESTER CARR, M.D. Reprinted from the *Archives of Pediatrics*, 1902.

THIS volume of transactions will prove especially valuable to those interested in this field as it contains an index of the papers read by members of the American Pediatric Society from its first session up to date. The twenty-six essays reprinted are all of interest and deserve attention.

A SURGICAL HANDBOOK; for the Use of Students, Practitioners, House Surgeons and Dressers. By FRANCIS M. CAIRD, M.B., F.R.C.S., and CHARLES W. CATHCART, M.B., F.R.C.S. With numerous illustrations. Twelfth edition. Charles Griffin & Co., Limited, London; W. T. Keener & Co., Chicago.

THIS book has proven itself so useful to the young surgeons of England that it has reached its twelfth edition in about as many years. Even a cursory examination is sufficient to explain its popularity, for it is a model of its kind, compact in form, well printed and illustrated, and replete with information of the practical, every-day sort, not usually occurring in text-books. The principles and methods advocated are all thoroughly modern and reliable, and we take pleasure in bringing it to the notice of all who are not accomplished surgeons.

THE PRACTICE OF MEDICINE. A Text-book for Practitioners and Students, with Special Reference to Diagnosis and Treatment. By JAMES TYSON, M.D., Professor of Medicine in the University of Pennsylvania. Third Edition. P. Blakiston's Son & Co., Philadelphia.

PROFESSOR TYSON'S Text-book of the Practice of Medicine has very deservedly reached its third edition. It is undoubtedly a very useful and thoroughly practical volume. It probably contains more suggestions for treatment than any of the single volume text-books on the practice of medicine published. There are special features that commend it and add greatly to its interest. There are details of the history of the disease so introduced as to throw light on some feature of the affection under consideration that make it very pleasant reading. The chapters on nervous diseases are, we think, the clearest, briefest, most easily understood of any exposition of nervous diseases that we are familiar with in any of the general text-books of medi-

cine. There are many features in the volume that commend it. It lacks much of the technically scientific air that is often so formidable to the student, but appears so necessary to most authors, yet it is thoroughly up-to-date with true modern medical progress. It is very practical and definite in its recommendations for treatment. The chapters on kidney diseases are especially definite as regards diagnosis and treatment and of themselves must commend the book to many readers.

Physical Diagnosis of Diseases of the Chest. By Richard C. Cabot, M.D., Physician to Out-patients, Massachusetts General Hospital; Assistant in Clinical Medicine, Harvard Medical School. Second revised edition. With 147 illustrations. William Wood & Co., New York.

This excellent book well deserves the reputation which it has won among medical students of being the most thorough and reliable work upon the subject which they may conveniently employ. It is not intended to embody any original ideas of the author and is not made confusing to the beginner by the introduction of numerous fanciful and unproven methods of eliciting signs which are urged by certain enthusiasts as furnishing valuable means of obtaining almost pathognomonic evidences of particular conditions. It is founded upon several well-known encyclopedic treatises and endeavors to eliminate the numerous important errors which are found in almost every small and condensed book upon the subject. It is intended for use by the beginner in physical diagnosis, and yet the diseases of the heart and lungs are so thoroughly dealt with that even the most expert diagnostician cannot fail to gain valuable hints and inspiring thoughts from its perusal. It is brought up to date by the addition of a chapter upon radioscopy which is now so frequently used to confirm physical signs otherwise elicited, or to determine conditions which are not yet far enough advanced to enable a diagnosis to be made by other means.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by Dr. H. A. Hare and H. R. M. Landis. Vol. III. September, 1903: Lea Brothers & Co., Philadelphia and New York.

Diseases of the Thorax and its Viscera, including the Heart, Lungs, and Blood-vessels, Dermatology and Syphilis, Diseases of the Nervous System and Obstetrics, make up the list of contents of this last number of Progressive Medicine. The same authors are in control of the same sections, Drs. William Ewart, William S. Gottheil, William G. Spiller and Richard C. Norris, respectively.

A careful reading of the various abstracts here presented confirms and further extends our favorable impression of this work and of its great sphere of usefulness to the practitioner of the country.

While here and there evidences of loose and rapid abstracting are to be found, the work maintains the high standard that is essential in a work of this kind.

Of the various sections, that on the Nervous System fulfills the ideal conditions better than some of the others. Here the author has gone over a wide range of literature and has coordinated many opinions in a general paragraph. He has fairly succeeded in keeping away from the string of isolated abstract style that mars most year books. The author on diseases of the thorax, etc., has not so successfully avoided this slight retrograde tendency.

We note an absence of the subject matter of psychiatry in this volume, in fact, in the five or six years of this series foundation, diseases of the mind have been unaccountably neglected. In view of the fact that they occupy numerically so high a position in the community this oversight is surprising.

In all other respects we find Progressive Medicine of increasing value with each successive edition, and are convinced of not only its temporary value but of its permanent necessity.

A Nurse's Handbook of Obstetrics for Use in Training-Schools. By Joseph Brown Cooke, M.D., Fellow of the New York Obstetrical Society; Lecturer on Obstetrics to the New York City Training-school for Nurses; Surgeon to the New York Maternity Hospital, etc. J. B. Lippincott Company, Philadelphia and London.

Only a few years ago almost all the obstetrical nursing was delegated to those well-meaning but poorly-informed women whose knowledge of the subject was practically limited to their own experiences in becoming the mothers of three or four children. During recent years the attitude of physicians toward this branch of the medical profession has changed considerably so that it is generally recognized that some special training is necessary for one to justly pose as an accoucheur. To properly conduct a labor and subsequent puerperium at the present time according to up-to-date principles one cannot help but appreciate the important rôle which a well-trained nurse plays. The obstetrician is becoming more and more dependent upon her ability to properly care for mother and child and to direct his attention to possible deviations from the normal course of events. To meet the requirements of such a pupil-nurse this volume has been especially prepared. On the one hand, the methods employed to make such works suitable for mothers and nurses, and on the other hand, the deeply scientific teachings intended for the medical student have both been avoided as much as possible and the aim has been to embody "all the science and art of obstetrics that a nurse need know to practise her profession in an intelligent manner, consistent with her position as a scientifically educated woman." We feel that the author has remarkably well attained his object and that the volume deserves a wide use in the nurses' training-schools.

A Text-book of Medicine, Designed for the Use of Students. By James Magoffin French, M.D., Lecturer on Theory and Practice of Medicine, Medical College of Ohio, etc. Illustrated by ten full-page plates and fifty wood-engravings. William Wood & Company, New York.

There is one fault that might be found with this volume. It is too large for a student's handbook and it is not sufficiently complete for the use of a practising physician. The attempt to crowd all the subjects of medicine, including diseases of the nervous system and the various intoxications into the volume has given it a hurried fragmentary air. There are some excellent features in the book. We note, for instance, the charts on which are marked the exact locations throughout the world at which filariasis occurs. Here again, however, there is evidently an effort to prepare the student for examinations, rather than for his practical work, since at least as much space is devoted to the animal parasites of human beings as is given in much larger volumes on the practice of medicine.

We feel sure that when Dr. French will have the opportunity in a subsequent edition to enlarge his volume that it will make an excellent text-book of the practice of medicine. Compression has in our opinion somewhat impaired the value of this edition.

THE MEDICAL NEWS.

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ORIGINAL ARTICLES.

CRIMINAL PROCEDURE AGAINST THE UNLAWFUL PRACTICE OF MEDICINE.*

BY HON. JULIUS M. MAYER,

OF NEW YORK;

JUSTICE OF THE COURT OF SPECIAL SESSIONS OF THE CITY OF NEW YORK, FIRST DIVISION.

WHAT I shall say to-night will not be set forth in a paper, but in a talk, to some extent, on the subject which has been assigned to me. I shall not endeavor to cover by any means all that may be said on the subject, but, this being a gathering of men supposedly learned, at least in two professions, it is my desire to call your attention to two or three things; for I think that if one tries to cover too much ground, he is liable to lose the force of making a few propositions and points which seem to him salient and important. My only justification for talking on this subject is that, under the law applicable to the courts in this city, the criminal court, known as the Court of Special Sessions, is the court before which, in the main, these cases of unlawful practice of medicine are tried; for that court has jurisdiction of misdemeanors committed in this county, and, as the unlawful practice of medicine is defined by the statute as a misdemeanor, cases arising under that statute come before us.

Now, this statute is peculiar, in that it presents to a court in this State a combined question of fact and of law. In some of the States of the Union the practice of medicine has been defined; but I shall not now refer in detail to the States in which there has been a definition. My friend Mr. Andrews, the very capable and efficient counsel of the County Medical Society, has already written an article upon that subject, in which, among other things, he calls attention to the fact that in this State there is no definition of what constitutes the practice of medicine. Let me read from Section 153, Chapter 661, of the Laws of this State of 1893, as amended in the years 1895, 1896, 1901 and 1902. This is the statute under which our court must act:

"Any person who, not then being lawfully authorized to practice medicine within this State and so registered according to law, shall practice medicine in this State without lawful registration or in violation of any provision of this article; and any person who shall buy, sell or fraudulently obtain any medical diploma, license, record, or registration, or who shall aid or abet such buying, selling or fraudulently obtaining, or who shall practice medicine under cover of any medical diploma, license, record, or registration illegally obtained, or signed, or issued unlawfully or under fraudulent representations or mistake of fact in a material regard, or who, after conviction of a felony, shall attempt to practice medicine, or shall so practice, and any person who shall append the letters M.D. to his or her name, or shall assume or advertise the title of doctor (or any title which shall show or tend to show that the person assuming or advertising the same is a practitioner of any of the branches of medicine) in such a manner as to convey the impression that he or she is a legal practitioner of medicine, or of any of its branches without having legally received the medical degree, or without having received a license which constituted at the time an authority to practice medicine under the laws of this State then in force, shall be guilty of a misdemeanor."

You see at the outset that the gist of the crime is the unlawful practice of medicine, and at once the question arises, "What is the practice of medicine?" and that is a question which we have been compelled to determine as a question of law as well as of fact. In many States, the practice of medicine is specifically defined, and then the only duty of the court is to ascertain whether the defendant charged with the crime has done certain acts which come within that definition; but in this State we must determine whether, as matter of law as well of fact, the defendant has practised medicine.

There was a notion at one time that the practice of medicine, within the statute, involved the prescription of drugs. We have held to the contrary; and we have held, in substance, that the practice of medicine consisted, among other things, in the ascertainment—or the pretended ascertainment—of the malady or disease with which the patient was afflicted; that the diagnosing of the case by a person, whether he prescribed drugs or not, constituted the practice of medicine.

In calling your attention to our holdings in this regard, I am not to be understood as passing beforehand upon some questions which may come before us. It would be manifestly improper for me to anticipate, in respect of certain questions, what we may do if those questions are brought before us. I have, however, brought here the records of two or three cases, which may give you some idea as to what we have decided in our court; and I think I am correct in sayinig that no decision of ours in a case involving the unlawful practice of medicine, has been reversed by any of the higher courts.

I call your attention to the case of the People *vs.* Joseph Rohrer, a brief history of which I will read. The defendant was convicted February 14, 1902, in the Court of Special Sessions.

He advertised as a hydropathic physician and conducted a sanitarium and massage institute at 152 East Eighty-sixth Street, New York. He treated the complaining witness for facial paralysis, applying ordinary hand massage and electrical massage. A demurrer to the complaint was entered by the defendant, and thus the ques-

*Paper read before the Society of Medical Jurisprudence.

tion of law directly arose. Briefs were submitted by the counsel for the County Medical Society and the counsel for the defendant, and the question was argued at length. The trial was strongly contested, and the question, so far as the Court of Special Sessions was concerned, was settled, that the treatment of disease by such a method, whether mechanical or by the use of drugs, if done by a non-registered physician, was in violation of the statute. You will see at once that this case brought up the question whether the prescription of drugs was a necessary ingredient of the crime, and we held that it was not. The case was not appealed, and therefore the decision stands as law.

The case of the People *vs.* Julius A. Ward. This defendant was the head of a school of practitioners known as "somatopathists," otherwise known as a kind of "osteopathists." He occupied apartments at 640 Madison Avenue, New York, where he conducted a school and treated disease by methods other than the giving of drugs. The County Medical Society, as we understand it, undertook in this case to get a decision not on the point that the giving of drugs is necessarily a part of the practice of medicine, but that the treatment of a disease involving, as it did, a diagnosis by a person not duly registered as a physician, was a direct violation of law. In this case the point was not contested before the court, for the reason that the defendant, after being advised by counsel, pleaded guilty, and by his own admission came within the purview of the law.

Then, we have had cases of the so-called "water cure"—"hydropathy" I think they call it. We also had the case of a man who was cured by "nature," whatever that might have been; and in both those cases the court convicted, and the court has not been reversed.

My first suggestion to you, therefore, is this: some time or another there is coming before that court or some other court in this State the question of what is practising medicine; and it seems to me to be the duty of the legislature to define what is meant by the "practice of medicine." I realize that efforts have been made in the legislature to that end. What is the practice of medicine ought not to be a question for a court to pass upon; it should be a concrete expression by the people of the State, through its legislature, in clear, definite form; and the legislature, as representing the sentiment of the people, should state in explicit phraseology what constitutes the practice of medicine; then the courts will be able to apply that definition to such cases as come before them. Thus far the community at large—at least, as I am told—and the medical profession have had no cause to complain of the judicial construction placed upon that question, but I regard the State of New York as behind some of the other States in legislation, in its failure to have the courage to clearly define in the statute what is the practice of medicine, and in leaving the determination of that question, to the courts as a question of law.

The difficulty will arise some day in this shape: In the majority of cases which come before us, some wrong has been done, and the medical societies or the district attorney or some agency prosecuting has had the case called to its attention because of some wrong or injury done to a person who has been treated; but some day or another the question will arise in a case where no actual physical harm has yet resulted; and when that case does arise, involving, as it will, the definition of some new "pathy" or "ism," the question is likely to be an exceedingly important one; and it is a very close question as to just how far the courts can go in ascertaining what is or is not the practice of medicine.

My second suggestion—and I think this is one that may be easily carried out in the coming legislature—is that the law with reference to punishments is seriously defective. Let me read you from this same section 153 the part relating to penalties. After defining what is the misdemeanor, the statute continues:

"and on conviction thereof shall be punished by a fine of not more than two hundred and fifty dollars, or imprisonment for six months for the first offence, and on conviction of any subsequent offence, by a fine of not more than five hundred dollars or imprisonment for not less than one year, or by both fine and imprisonment."

The usual maximum punishment for misdemeanors under the Penal Code of this State is one year, or five hundred dollars fine or both. There are some statutes which provide a different penalty, but that is the general provision as to misdemeanors; and where the law defines the doing or the failure to do an act, as a misdemeanor, and does not fix the punishment, the Code steps in and fixes it at one year's imprisonment, or five hundred dollars fine, or both.

My view is that there should never be, in a case of practising medicine unlawfully, a minimum fine or imprisonment. I do not see why the courts should be limited on a first offence against this statute, to punishing a man for not more than six months imprisonment, or not more than two hundred and fifty dollars fine. The first offence under the present law can be punished only by an imprisonment of six months, or a fine of two hundred and fifty dollars; and you will readily see, as I hope to illustrate, that there have come before the court cases in which the court would have felt it just to impose a very much more substantial punishment than this minimum punishment provided by the statute. The inequality and the absurdity of this limitation perhaps might be realized best when I tell you for illustration that, by a provision of the Sanitary Code, it is in our power to punish a man with imprisonment of one year and five hundred dollars fine for expectoration. But if, perchance, that man should purport to prescribe a medicine which might result in an abortion, and the proceeding was not brought under the particular sec-

tion relating to giving abortion medicine but was brought under this law, we would be restricted to imposing a punishment of six months or two hundred and fifty dollars fine. It has been the experience of the justices of the Court of Special Sessions, that it is always a mistake to provide a minimum punishment. With possibly an exception here and there, there should not be a minimum punishment for crime; and the court always ought to have, within the maximum punishment, the free range and discretion which the peculiar facts and circumstances in any particular case warrant. I would therefore recommend, as an affirmative suggestion to your Society, that this law should be amended so as to make a violation of the statute a misdemeanor punishable in the discretion of the court by not more than one year's imprisonment or five hundred dollars fine or both.

Now, thirdly, I think no man who does not sit in that court—except, of course of counsel for the medical societies—appreciates the difficulties which attend a prosecution to be followed by a conviction which will be sustained, in the cases involving unlawful practice of medicine. The ordinary crimes involving larceny and the crimes against property are, as a broad general proposition, easily discoverable. But when a man or woman is practising medicine unlawfully, he or she surrounds himself or herself with every conceivable safeguard. In the first place, the person who is to be treated, and does allow himself to be treated rarely will turn State's evidence. If you send a detective to a false doctor, the detective has very great difficulty in obtaining any corroboration, because these doctors, so-called, will rarely, if ever, treat a patient or prescribe for him when anybody else is with him. Accordingly, when the case comes to court, a situation is presented where you have the detective's word against the defendant's word; and, as the higher courts again and again have cautioned the lower courts concerning the uncorroborated testimony of paid detectives, you can readily realize that, under the rule which we are bound to obey, namely, that the guilt of a person must be proven beyond a reasonable doubt, it is very difficult for even skilled detectives to obtain the necessary evidence.

The devices that have been presented in cases to us are so numerous and so skilful that it is enough for me to simply refer to them in a general way. A woman goes into one of these places attracted by an advertisement, that she may be relieved of her distress; and the advertiser who pretends to be a doctor will not see that woman unless she be alone, and he will see to it that if there is any person accompanying her, the companion shall be shut off from the interview in such a manner that there will be no chance of corroborating testimony. I might enlarge in this connection upon the difficulty of getting cases which are sufficiently strong to come within the well settled rules of the criminal law in respect of a conviction; it is enough upon this subject that I should simply suggest to you the difficulties.

Now, that being so, I tread upon what some might regard as dangerous ground, but I am not afraid of it. The worst agencies in New York to-day that help the man who sells either real or pretended abortion medicines, the man who sells either real or pretended medicines to cure this or that infirmity relating to the private life of a man or a woman are certain of the New York newspapers; for they make it possible, by their advertisements, to attract the unwary, the superstitious and the fearful. I shall read to you two or three cases of that kind, and that is the reason I have this bundle here (pointing); you need not be afraid of the bundle: I am not going to talk as much as there is in the bundle; but I brought it here, in order that I might quote with accuracy from the court records to show you how dangerous some of these advertisements are.

I do not know much about the technic of journalism, and I assume, from what I read in the newspapers, that the new school of journalism which has been founded by Columbia University is a forward step. I would suggest, if there is a real desire to raise the standard of newspaperism and journalism, that one of the first chairs be a chair on advertising; and let it be taught to the young men who are to be the future newspaper men of the country that the first duty of a great newspaper is to censor its medical advertisements and to see to it that no advertisement shall go into its columns advertising the nostrums of men and women who seek to lead astray unfortunate people, and who usually entrap women who find themselves in a sad position, and who, through their fear or their ignorance, are led on into unhappy situations by following up what these flagrant advertisements say.

You have no idea, I fear, as to the devices which these advertisements set forth so as to attract the unwary. Many of these persons who pose as fortune tellers and palmists, do so simply to cover the giving out of these medicines to which I have referred; and the seriousness of it is apparent when you realize that in some important newspapers in this greater city of ours these advertisements appear, while in the editorials we are commended to the highest moral life. If there are enough newspaper people in this city—and I believe there are—to courageously take up that proposition, and if there are enough men who are not afraid to talk about it, the time must come when such care will be exercised that no advertisement of this kind can be inserted in the newspapers and published by them and thereby lure on these ignorant people. Now let me read one or two of them to you.

Here was the case of Pauline Eulalia, who was found guilty on June 12, 1903, in the Court of Special Sessions for purporting to prescribe certain medicines to a woman. The advertise-

ment itself, in a great New York newspaper, is perfectly innocent—apparently!

CLAIRVOYANT,
PSYCHIC AND PALMIST.
$10.00 READING FOR $1.00.
PRINCESS EULALIA,
Occult Wonder,

Your Life An Open Book To Her.
She Will Tell You What You Called For
—Anything You Want To Know.
Advice That Will Do You Good.
Always Consult the Best.

So positive am I of my powers to tell the past, present and future, and exactly what you want to know, that I will make NO CHARGE! NO CHARGE! unless you obtain perfect satisfaction and find me superior to all other mediums, clairvoyants and palmists in this city.

THE FOLLOWING LIST SHOWS PURELY AND SIMPLY THAT EULALIA HAS BEEN CONSULTED BY THE MOST POPULAR AND MOST NOTED MEN OF THE WORLD, AND HER READING OF THEIR LIVES WAS PRONOUNCED MOST WONDERFUL: President McKinley, President Roosevelt, President Harrison, President Cleveland, Archbishop Ireland, Sen. Chauncey M. Depew, Sen. Mark Hanna, Admiral Geo. Dewey, Admiral Sampson, Emperor of Austria, Emperor of Germany, King of England, Queen Victoria, King of Italy, King of Portugal, King of Servia.

LOVE, COURTSHIP AND MARRIAGE.

Gives truthful revelations on all love affairs, troubles, marriages and by proper advice restores lost affection, reunites the separated, settles lovers' quarrels, tells you when and whom you will marry, and how to win the man or woman you love, and how to make your husband or wife true to you, and how to overpower all your enemies; gives full secret how to control and charm any one you love or meet.

CONCERNING BUSINESS AFFAIRS.

Gives never failing information regarding all kinds of business, financial difficulties, speculation, investments, insurance, changes, travels, health, sickness, love, divorce, marriage, lawsuits, separations, wills, deeds, mortgages, patents, claims, collections, what you are best adapted for.

HOURS: DAILY 10 TO 8, SUNDAY INCLUDED.

Mail $1. Send date of birth, lock of hair, six questions.

102 West 38th St., bet. Broadway and Sixth Av.

This is her prescription:

Dr. Martel's Pills, with the French flag:
3 in morning
5 at noon
7 before dinner
1 white one before retiring
before meals

Thursday afternoon:
2 ounces Creoline, douche three times a day.

Now you see what happens. You can imagine; but let me tell you from our practical experience. An ignorant woman gets hold of that advertisement; she is in trouble; she has not the courage, if you please, to consult with those with whom she should consult. She may be some poor servant girl alone in this country. She goes to this soothsayer or whatever she may be called. She goes upon the theory that she can foretell what is going to happen; and in the course of that conversation the soothsayer says: "Why, you seem troubled." Whereupon the victim says "Yes," and tells her her story. Then she pretends to give her some kind of medicine or another, which has one of two results: if it is a serious medicine, it may create serious physical damage; if it is not, the woman leaves there supposing that certain things can be accomplished—and the first thing you know, she is a suicide; whereas, if she went to a physician of repute, he would advise her as a father, give her encouragement and set her in the honest path.

Now, don't you see that the clientage which that woman gets would be next to impossible, were it not for the fact that there is placed in the hands of the great New York public at a few cents per day a piece of information so easily and so readily, that those who are unwise, ignorant, superstitious or unwary are led astray.

I shall refer now to another case. There was tried before us in April of this year the case of a man named Lewis Reeves, interesting from several standpoints—interesting because a point of law in reference to the first subject I discussed was raised, and interesting on the line of what I am now discussing. I will read you, as it appeared in evidence, the advertisement which was published by a great New York newspaper. This is the advertisement:

ARE YOU UNFORTUNATE? Women desiring to avoid monthly uncertainties and detention from social and other duties should send for EZU, the great French preventive; price $2, and worth it, because it can be depended upon. EZU COMPANY, 247 Sixth Ave., New York.

Counsel for the County Medical Society, Mr. Andrews, placed in evidence the following exhibit. This was not in the newspaper; this was a circular which followed upon the request of a correspondent, and which this man Reeves, otherwise Ezu, sent to his correspondent.

Why They All Do It
247 Sixth Avenue
Room 9
New York.

Why Widows, Maids and Matrons singly and collectively need no longer worry over irregularities is that Ezu effectually routs *any* case, no matter how stubborn or how long standing.

As a Positive Preventative, you don't depend on hope when using Ezu. There's no guesswork about it. It's *sure* as *Fate* and as harmless as dewdrops.

Stop using nauseating pills and drugs that only upset your stomachs. Ezu is a local treatment that eliminates any possibility of danger.

It's not a miracle, but simply an unlooked-for discovery by one of your own sex.

The price is $2.00 a package and money well spent, if you need it. Faithfully yours,
EZU COMPANY.

This man, as Mr. Andrews told me, and as I have had occasion to verify, evidently had gone so far as to take the daily announcements in the newspapers of marriages, and mail this vile circular to every person who he saw by the daily

papers was in the marriage list. As matter of fact, we know of a case where the notice was intercepted by a gentleman whose daughter had just been married and who was then on her wedding tour. The gentleman is a reputable merchant of this community, who was lucky enough to get this circular before it reached those for whom it was intended. Well, Ezu has just completed a term in the penitentiary.

But, you see there were several points in that case which confirm my suggestions to you to-night. In the first place, we should never have been limited to the minimum punishment in that case. In the second place, the publication of that advertisement was almost as criminal as the man himself. And in the third place, there was raised in this case this question, quite ingenious, as you will see: The evidence was that the detective went in and that this man Reeves, otherwise Ezu, asked the woman detective a certain number of questions; and being told by her of certain troubles that she claimed she was suffering under, prescribed this medicine. The counsel for the County Medical Society drew his complaint in such a way that it might have sounded either as a violation against this statute, or as a violation against the statute for giving medicines that were likely to produce an abortion. The defendant asked, and properly so, that the prosecution should elect, and of course, the other crime being a felony, the prosecution elected to try it as for a misdemeanor upon the theory that it was practising medicine unlawfully. Whereupon the defense said: Why, that is not practising medicine unlawfully; this man did not purport to practise medicine; he did not purport to cure anything at all; he purported to do something which, on its face, was not practising medicine; and his counsel moved for a dismissal of the complaint on that ground. Well, that is an argument that is not by any means a foolish argument, as every lawyer here will realize. The court denied his motion, upon the theory that his having examined the woman and purported to have discovered certain conditions and having given her something as a physician involved the unlawful practice of medicine. That case was taken before Judge Lacombe, of the United States Circuit Court, not upon the theory that there was no crime proved but upon the theory of a deprivation of liberty without due process of law, on the ground that the Court of Special Sessions was a court without a jury. Judge Lacombe dismissed his writ. Then he moved for a certificate of reasonable doubt before one of the judges of the Supreme Court, and the motion was denied, without opinion. The case was never taken up, and the man has served his term.

Now, so far as we in the court are concerned, and I believe, so far as the lawyers who make a specialty of these cases are concerned, it would have been a source of great satisfaction to us had that case gone to the Appellate Court, so that we might have a clear and definite opinion upon this subject. In bringing these cases under the statute as for a misdemeanor, you can readily see that some time or other there will be a pretty close question, unless the legislature defines what is meant by the practice of medicine.

There are many more cases I might relate to you and many more advertisements I might read, but let me say here, in conclusion, that I do hope the newspapers of New York will exercise a censorship of their own over their advertisements of this character. The ideal newspaper would be the one which, when it receives an advertisement from a palmist or a fortune teller or a person of some like occupation, would send one of its trusty men to investigate whether as matter of fact the person does legitimately engage in the reading of palms or the telling of fortunes. At present, of course, there is no law against those things. If a person will be gratified by having his palm read, I suppose there is no law that will prevent it; or if a person can foresee what United States Steel is going to do to-morrow by visiting a fortune teller, why I don't suppose that you who have been in Wall Street will have the slightest objection to it; but if there are these fortune-telling and palm reading and similar advertisements, surely the enlightened newspapers of this greater city have a morale which will compel them and each other to live up to the same high standards of conduct which they constantly demand of those of us who are merely laymen and not engaged in the publication of newspapers. Of course, there are a great many exceptions among newspapers which would not think of publishing such advertisements; and I am inclined to believe, from a letter which I have here and which Mr. Andrews has handed to me—from a newspaper man, whose name we are not permitted to mention—that even those newspapers which have been publishing these advertisements, will exercise a censorship, if their attention is strongly called to it and if they can be made to understand the serious difficulties that come from it—and certainly an advertisement so plain, so raw, as this Ezu advertisement doesn't require very much investigation or censorship.

I would read you here, finally—but I cannot lay my hands on it at the moment—the advertisement of a man named Sanford R. Christian, whom we sent to the penitentiary for six months. This was the advertisement of a man under the name of "Dr. and Mrs. Clark"—a long advertisement in one of the important daily papers, showing as nearly as vile phraseology could, that his advertisement was to induce persons to buy the medicines of the character which I have described. That man did a flourishing business, and it took months and months for the medical societies to get after him and finally bring him to the bar of justice. You can readily understand that he would not have done anywhere near that business, if it had not been that he had had the medium of a great newspaper which the people had a right to be-

lieve published honest and decent and trustworthy advertisemtns.

My three suggestions therefore are: first, define the practice of medicine; second, strike out the minimum punishment; and third, devise some method whereby all advertisements of this kind are eliminated from the papers that are published anywhere in the State of New York."

Discussion here followed, participated in by the following named gentlemen: Mr. Champe S. Andrews, Dr. Fischer, Mr. John B. Huber, Dr. Von Ramdohr, Judge Ommen, Mr. Andrews, Mr. Charles M. Demond, Mr. William R. Koehl, Mr. Alexander Campbell, Dr. Sieberg and Mr. Louis J. Vorhaus.

To these remarks Judge Mayer responded as follows:

"I shall refer only to a very few matters which have been suggested during the discussion. There is no doubt that Mr. Vorhaus, the last speaker, has made reference to a practical method —one which has, in fact, been used to some extent. But one of the greatest difficulties, as I think you saw from one of the advertisements I read, is that they bear nothing upon the face that is illegal—like the Eulalia advertisement; there is nothing in that advertisement prima facie illegal or that has any relation to the unlawful practice of medicine. Under the federal statute, I think all the lawyers here will agree that no prosecution will prevail, because not merely as matter of law, but as matter of fact, the character of that woman's business must have been brought home to the publisher or other responsible person

Now, if I have been understood as saying that this evil can be cured by legislation, I failed to express myself clearly. Somebody here in this discussion this evening struck the keynote. My sole purpose to-night was simply to relate some facts which should be called to your attention; but the remedy is a slow one. It will take a long while, but if successful, it will be a permanent remedy—the gradual uplifting of public opinion and of the opinion and conduct of the men, whoever they may be, who are responsible for these publications. Somebody here remarked —I think it was Mr. Demond—that twenty years ago, he used to read very bad advertisements in the newspapers, and that nowadays he doesn't see so many. Well, I think that is true; I think that the columns of the newspapers to-day are ever so much better than they were in this respect; and you and I know of newspapers daily published in the City of New York which do not permit any such advertisements in their advertising columns. There is newspaper after newspaper in this greater city which would not for one moment permit such advertisements. Now, if the men who are responsible for the editing and publishing of those decent newspapers will assist in what seems to all of us the laudable purpose of driving out that class of advertisements from all newspapers, I say that it is simply, as all such matters are, a matter of time and development until this class of advertising will be driven out of the newspapers. As to Mr. Koehl, he was entirely too fearful; these advertisements form only part of the income of some newspapers; doubtless they add comfortably to that income, and yet after all the greatest income of the newspapers is obtained from the legitimate advertisements, those of merchants and others who have legitimate goods to sell, and of persons who advertise public entertainments and the like. I still believe that if the men, most of whom are men of considerable importance, and of excellent character—if the men on these newspapers who are responsible for the publication of these advertisements are so constantly driven at with this single question that I am about to put, the time must come, by the resolutions of societies of this kind, when this thing will be minimized. All you need do is to ask the man who is responsible for those advertisements, if he will please take one of them home to his young daughter and have her read it; and if he says yes, let him publish it, but if he says no, there is some show that you are reaching him in some sort of way.

On the contrary, then, I do not think you can stop the trouble by legislation. I think you can only stop it by courageous, constant efforts to get hold of these men by appealing to their best sentiment.

As to the question of the minimum of punishment. I do not want to be misunderstood about that. I should not place the maximum punishment any higher than it is to-day, because, as the men who have practised in the criminal courts will tell you, the minute you make the punishment too drastic, you defeat the very purpose of the statute. Leave the punishment where it is to-day, but strike out the provision limiting the courts to the minimum punishment.

On the question, finally, of the definition of the practice of medicine. While I want to be clearly understood as not expressing any opinion on certain questions, and while not agreeing or disagreeing with Dr. Fischer and his suggestion, I do think, as a matter of practical affairs, that the final definition will be best obtained by gradual steps, and that you cannot expect to accomplish in one legislature or in one year what may be to you the clearest and best definition of the practice of medicine. I have thrown out these suggestions to-night merely for the purpose of showing you how these questions are looked at by those of us who are officially in contact with them."

Leucemic Infiltration of the Accessory Sinuses.—An interesting condition of the mucous membrane of the accessory sinuses in leucemia is described by K. M Menzel (Zeitsch. f. klin. Med., Vol. 51, Nos. 3 and 4). Instead of a smooth lining, the sphenoidal sinus was clothed with a white membrane, presenting some 50 to 60 distinct protuberances between which there were extensive hemorrhages. All signs of inflammation were absent. This condition is of importance, as it may explain the uncontrollable epistaxis of leucemia.

A NEW METHOD FOR PERFORMING INTESTINAL ANASTOMOSIS.

BY JOHN W. KEEFE, M.D.,
OF PROVIDENCE, R. I.;
ATTENDING SURGEON TO THE RHODE ISLAND AND ST. JOSEPH'S HOSPITALS.

MUCH has been written upon the subject of intestinal anastomosis and at the present time there are eighty or more methods of uniting the ends of the resected intestine. It is a fact that more sutures have been devised for this than for any other branch of the entire field of surgery. Remarkable ingenuity has been shown by surgeons in the various methods employed, both in the insertion of the sutures and in the use of appliances to aid in the operation.

In the method I describe the Lembert interrupted and the Cushing right angle suture are to be made use of. In the majority of methods described these sutures seemed to be very favorably looked upon. I also use another suture a modification of the Lembert interrupted; which has all the advantages of the latter. It not only

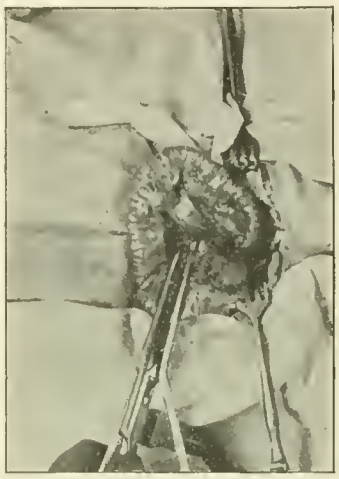
Fig. 1.

Intestine to be excised drawn through abdominal wound.

holds the peritoneal and muscular coats of the intestine in firm apposition at the mesenteric border but also serves to unite the mesentery at this point where leakage and infection very frequently occur. I learned from my experiments upon the dog that with the interrupted and modified Lembert sutures there is a very rapid union of the serous surfaces and with the sutures properly inserted these peritoneal surfaces are protected and firmly supported by the strong intestinal walls.

To sever the diseased tract of intestine and to separate the mesentery from it I use the Downes' electrothermic angiotribe. Among the many advantages this instrument possesses, not only in this operation, but in others, are, immediate hemostasis; perfect asepsis and cleanliness throughout the entire operation; an immunity from soiling with pus, blood and feces; the dispensing with the ligature; no secondary hemorrhage from slipping of ligatures or subsequent infection from the same, since there is not the puckering and con-

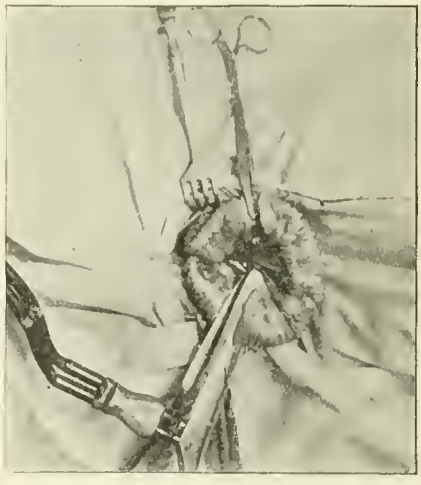
Fig. 2.



Electrothermic angiotribe and guard clamp applied to intestine at first point of section.

striction of the tissue which the ligature causes. With the angiotribe, in this particular operation we encounter no difficulty from a distended intestine, as is frequently the case when we use other appliances, nor do we need fear the foreign body in a gut with a small lumen. The angiotribe is an instrument readily applied, easily understood and a profound knowledge of electricity is not essen-

Fig. 3.



Small clamp applied to desiccated strip left after removal of electrothermic angiotribe and angiotribe applied to second point of section of the intestine.

tial in its manipulation. For these reasons it is invaluable in modern surgery and indispensable to the surgeon of to-day.

The technic of the operation is as follows:

After having drawn through the wound the tract of intestine to be excised, clamp the intestine at a right angle to its long axis with the three-eighth-inch blade of the electro thermic angiotribe and apply a current of 60 ampères for one minute. The compression of the clamp together with the heat generated by the electric current will produce complete hemostasis and occlusion of the gut with no extrusion of feces; therefore asepsis. Remove the angiotribe, and clamp the desiccated strip made by this instrument upon the intestine with a straight artery forcep as a precautionary measure to prevent leakage into the abdominal cavity, should the angiotribe have failed to completely close the lumen of the gut. In like manner repeat this process at the other point on the intestine where it is to be severed. After having done this sever the intestine by cutting through these two desiccated strips. Now the mesentery attached to this partially excised portion of the intestine is to be separated from it. Clamp this mesentery with the three-eighths-inch blade of the angiotribe and in as many sections as is necessary apply a current of 60 ampères for forty-five seconds each. The number of applications of the angiotribe on the mesentery depends of course upon the length of intestine to be excised. The desiccated strip made by the angiotribe on the mesentery will be found amply sufficient to prevent all bleeding, and further hemostasis with clamps or ligatures is needless. Separate the mesentery from the diseased structure by cutting through the path made by the angiotribe in the mesentery. Then remove the excised portion of intestine.

Fig. 4.

Electrothermic angiotribe applied to mesentery of portion of intestine requiring removal.

The desiccated ends are now to be approximated and their peritoneal surfaces united with a modified and an interrupted Lembert suture. The modified suture is inserted first and is passed through peritoneal, muscular and submucous coats of intestine one-eighth of an inch from desiccated strip near the mesenteric border of the intestine. Carry it out through the peritoneal coat on this side of the anastomosis and pass the needle through both layers of peritoneum where the peritoneum goes to form the mesentery.

Fig. 5.

Removal of portion to be excised, by cutting through desiccated strips with scissors.

Then carry the suture across and through both layers of the mesentery at a corresponding place on the other side of intended union. Now carry the needle back and through the mesentery again at the same point where we entered it the first time, then across again for the second time, through the same point where the mesentery was entered on this side of the anastomosis. In other words the stitch has been looped in the mesentery to strengthen this weak spot. This stitch is completed by passing the needle through peritoneal, muscular and submucous coats on this side of the union and out through the peritoneal coat of intestine.

The interrupted Lembert suture is then inserted at opposite poles on the intestine to the stitch previously made. This suture is passed on one side of the wound one-eighth of an inch from the desiccated strip through the peritoneal, muscular and submucous coats and out again through the peritoneal coat on the same side of the desiccated strip. It is then carried across the two desiccated strips and inserted on this side of the proposed union in the same manner as on the other side. The main point to be borne in mind when placing these two Lembert sutures and the Cushing suture also is not to penetrate the mucous coat of the intestine but to have it enter the submucous coat that we may rely on the tough, fibrous character of this layer. With these two stitches in place we have the ends of the intestine approximated. With the two ends of the intestine in apposition the desiccated strip of mesentery is left in the form of a loop. I unite these edges of mesentery with a Cushing suture, placing the stitches one-eighth of an inch from the

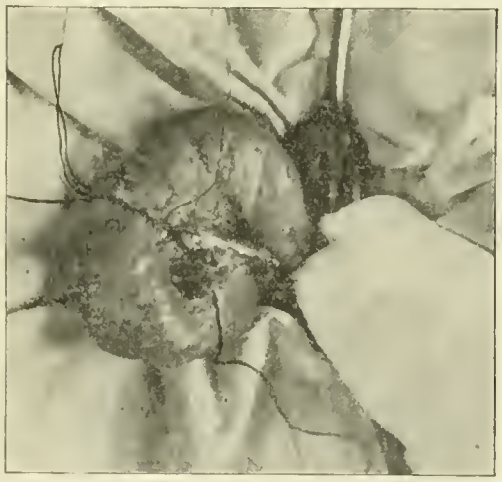
desiccated strip made by the application of the angiotribe.

To further unite the peritoneal surfaces and walls of the intestine I now use a Cushing right angle suture bearing in mind also not to penetrate the mucous coat. Begin the suture one-eighth of an inch from the desiccated strip on one side of the anastomosis and pass the needle through peritoneal, muscular and submucous coats of the intestine and out through serous coat on one side of union then carry it across the two desiccated strips to the other side at right angles to this stitch through the same coats of intestine as on the other side. On this same side of the desiccated strips make a stitch at right angles to this horizontal stitch, then carry the needle across the desiccated strips again at right angles to this short stitch, parallel to the horizontal one and through the intestine as before. Continue the suture in this manner until the entire circumference of the gut is encircled with it. The suture is then tied but before doing so the forceps used to clamp the intestine are removed.

Now invaginate the intestine with the finger and use sufficient force to make a lumen through the desiccated strip. Press gases and feces through the anastomosed ends to see that there is no leakage. Drop intestine back and close abdominal wound in the usual way.

The advantages of this method are immediate hemostasis; perfect asepsis, since there is no soiling with feces; no intestinal obstruction; no eversion of mucous membrane; little danger of cicatricial stenosis; a firm, strong union and a rapid operation.

Fig. 6.



Modified Lembert and right angle Cushing sutures in place.

I have performed eight operations upon dogs with a view of developing an aseptic method of making resections of the stomach and intestine, by the aid of the Downes electrothermic angiotribe. In one instance I removed the stomach and united the esophagus with the duodenum. The other seven operations consisted in resections of several inches of the ileum. We had in the case of gastrectomy some leakage of the stomach contents through the desiccated strips left upon removal of the angiotribe; owing I believe to the thickness of the stomach walls.

Fig. 7.

Anastomosis complete.

I am convinced that a larger electrothermic angiotribe with more crushing power would be of greater service in operations upon the stomach, than the instruments now in use. The angiotribe with the three-eighths-inch blade is well adapted for intestinal resections.

I performed my first operation November 2, 1902, and purposely allowed the ends of the intestine, remaining after resection with the angiotribe, to remain sealed by the desiccated strips alone; uniting the intestine by a lateral anastomosis with a Murphy button. This dog died in thirty-eight hours and the post-mortem examination showed a general peritonitis with extravasation of feces into the abdominal cavity, through the resected ends of the intestine, the desiccated ends having sloughed. There was good union and no leakage about the site of the lateral anastomosis with the Murphy button. This case proves the value of a purse string over the stump subsequent to the removal of the appendix with the electrothermic angiotribe.

An end-to-end anastomosis with silk Lembert sutures, following resection of the gut with the angiotribe, was made on the second dog. The desiccated strips sealing the resected ends of the intestine were allowed to remain closed after the insertion of a Cushing suture. The bowels moved thirty-six hours after the operation, showing that sloughing of the desiccated strips had taken place.

However, I believe that to complete the lumen of the intestine at the site of union, by invaginating the intestine with the finger and thus destroy the sealing by the desiccated strip, is desirable and should be done after the introduction of the Cushing suture.

One of the dogs had portions of the ileum resected on two occasions making a good recovery each time. He was intentionally killed four months after the first and one month subsequent to the last operation. The autopsy showed the mucous membrane to be perfectly smooth at the site of the operation wounds in the intestine, and no narrowing of its caliber. Another dog was intentionally killed fifty-four days after resection of a portion of the ileum. The autopsy revealed perfect union at the site of the operation. There were no adhesions and on opening the intestine and viewing the mucous membrane it was difficult to locate the line of union. Here again we found no narrowing of the caliber of the intestine.

I had an opportunity to carry out this method in man last March. The patient was suffering from intestinal obstruction and peritonitis due to a gangrenous, incarcerated, scrotal hernia. He had been ill some time and was in a poor general condition. I performed the operation with the aid of cocaine, removing 14 inches of the ileum with the aid of the Downes electrothermic angiotribe; uniting the ends with a modified Lembert and a Cushing suture.

The man made scarcely any complaint while the intestine was being resected. The cocaine was injected into the skin and ileohypogastric and ileo-inguinal nerves. The patient died four and one-half days following the operation from a continuance of the peritonitis present at the time of the operation.

A post-mortem examination showed a general peritonitis, with good union at the site of the intestinal anastomosis. No gas or intestinal contents could be pressed through the bond of union.

The excision of the portion of the intestine was performed very easily and rapidly with no extrusion of feces from the bowel.

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Another Laboratory Plague Death.—The chief of the bacteriological laboratory of the Imperial Institute of Experimental Medicine died of the plague on January 20. He became ill on January 16, after experimenting with living plague cultures, and repeated injections of anti-plague serum were unavailing.

A FATAL CASE OF CHOREA COMPLICATED BY ENDOCARDITIS, PERICARDITIS AND NEPHRITIS.*

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THE report of a single clinical case is justifiable only if it teach some important truth or establish some useful principle. This requirement is, I believe, fulfilled by the history to be related, inasmuch as it has distinct bearing upon the etiology, the pathology and the treatment of a not uncommon disorder.

There was brought to me on December 29, 1902, the ten-year old daughter of a neurotic father, who within twenty-four hours had been observed to exhibit twitching of the fingers of the right hand, then of the fingers of the left hand, and next of the right foot. There was also slight pain on movement on the palmar aspect of the right wrist-joint. For a month the child had been thought to have a "bad stomach," suffering from impairment of appetite and eating but little. She slept well and she had not been considered "nervous," though she had never been robust. She had had sore throat, perhaps diphtheria, three years previously and measles, whooping cough, chickenpox and mumps in early childhood. One maternal aunt and the paternal grandmother were said to be rheumatic, and another maternal aunt and two paternal cousins had had chorea.

On examination the heart was found overacting and a blowing systolic murmur was audible at the apex. The temperature was 100.3° F. Believing the case to be one of beginning chorea I directed five drops of Fowler's solution of potassium arsenite to be given three times a day, and in view of the possibility of a rheumatic relationship I also prescribed five grains each of sodium salicylate and sodium bromide likewise to be taken thrice daily. I was not able to decide whether the endocardial murmur was recent or old, although by reason of its softness and of the overaction of the heart, together with the elevation of temperature, I suspected the former. Accordingly I had the child put to bed. The temperature continued elevated, reaching as high as 102° F.; the pulse remained frequent, ranging about 120; the heart-murmur persisted; and slight twitching appeared in the muscles of the face. Pallor was marked. On January 12 the urine was noticed to be turbid and brownish, and examination disclosed the presence of albumin, together with leucocytes in moderate number. The specific gravity was 1.020, the reaction was acid, and there was no response to Fehling's alkaline-copper test for sugar. The mixture of salicylate and bromide had been superseded by

* Read before the Medical Society of the State of Pennsylvania at York, Sept. 23, 1903.

solution of potassium citrate and tincture of iron chloride twenty drops, each, thrice daily. On January 17 hyaline, granular and epithelial tube-casts in large number were discovered in the urine in addition to the albumin, and a loud to-and-fro friction murmur was audible over the body and at the base of the heart. A small cantharidal plaster was applied to the precordium and for the iron and the potassium citrate tincture of digitalis 7½ minims with 2 fluidrams of Basham's mixture of iron and ammonium acetate were substituted. Fearing that the arsenic might increase the existing disturbance in the kidneys the Fowler's solution was withdrawn.

The patient continued to do well and exhibited exceedingly little movement until January 18, when she was greatly frightened in consequence of the burning out of an electric circuit in the room in which she lay. Shortly after this accident she became restless and jerky, and speech, which previously had been unaffected, was greatly interfered with, and the peevishness, captiousness, obstinacy and restiveness present were increased. By January 21 the child was dull and soporose, yet irritable and cross. Sleep was poor and restless. About two pints of urine were being passed in the twenty-four hours, and albumin and tube-casts were still present. The heart continued rapid and the rough to-and-fro murmur over the body of this viscus persisted. The temperature fluctuated between 101° and 102° F. For several days the condition of the patient appeared greatly aggravated. She was exceedingly restless, crying a good deal and with much jerking and disturbed sleep. The administration of Fowler's solution was now resumed and sodium bromide was given in doses of five grains thrice daily. A change for the better set in. The patient began to sleep a little more and became more tractable; the rough heart-murmur grew less marked, although the area of cardiac percussion-dulness was increased and the apex-beat was outside the left nipple-line.

On January 27 the patient was again able to speak a little; she cried less; the heart-murmurs were less pronounced; the twitching was less marked; the urine was growing less turbid, the amount of albumin present and also the number of tube-casts less. In a short while only the soft systolic murmur heard at the first examination was audible at the apex. The pulse-frequency slowly but steadily declined. On February 1 the temperature had reached 99° F.; appetite was returning; the bowels were regular; sleep was sound and refreshing; twitching was less; the power of speech was increasing and speech was more distinct and less jerky. The urine still contained tube-casts, though in smaller number, and only a trace of albumin. From February 5 the presence of albumin in the urine could no longer be detected either by heat or nitric-acid contact; though casts persisted, but in progressively diminishing number. The patient now began to sit up, but she was pallid and weak, and speech, though greatly improved, was not quite perfect. Twitching had almost entirely ceased. Improvement continued steadily and the patient became somewhat stronger. On February 7 she walked a few steps, not without difficulty, and she spoke more and better. The action of the heart was rhythmic, though rapid, and the soft systolic murmur at the apex was still audible; the pulse counted 108 in the minute. Pallor and weakness remained marked features, the former assuming an extraordinary ashen character, and the latter becoming extreme. Puffiness of the face appeared on February 15 and shortly afterward the legs became swollen. The dose of Fowler's solution was diminished, while the digitalis and Basham's mixture were continued. Dyspnea now developed and became gradually more marked, and death resulted on February 18, apparently as a result of heart-failure, due, I suppose, to myocarditis. No autopsy was held.

Summary: We have here a case of chorea in a child of neurotic heredity, with slight rheumatoid symptoms and signs of endocarditis, in which striking relief was afforded by the administration of appropriate remedies, but in which a marked exacerbation of the choreic manifestations followed upon a severe fright, and in the sequence of which there developed pericarditis, nephritis and myocarditis, and, finally, a grave anemia, with a fatal termination.

The specially interesting features in this case are the association with chorea of rheumatoid symptoms, endocarditis, pericarditis and nephritis, the control of the spasmodic movements by arsenic and the intensification of the symptoms in the sequence of emotional disturbance (fright), and the fatal termination. The frequent coincidence or sequence of chorea and muscular and articular pain and swelling is a well-recognized fact, occurring in about one-fifth of the cases. By some chorea is looked upon merely as a manifestation of rheumatism. Endocarditis is a common complication of chorea, having been observed in 62 among 73 fatal cases collected by Osler,* who makes the statement that "*there is no known disease in which endocarditis is so constantly found, post mortem, as chorea;* it is exceptional to find the heart healthy." Pericarditis is less common, having been present in 19 of the cases, while nephritis is still less common, although Osler expresses the opinion that it is probably not so rare as has been thought. Inasmuch as chorea may be safely looked upon as an infectious disease, or at least as a manifestation of some infectious process, it is not difficult to understand that such complications as those mentioned should occur, perhaps as a varied result of a common cause. The same interpretation may be applicable to articular symptoms when these are present. How emotional disturbances act in the etiology of chorea, as in that of some other diseases, as for instance exophthalmic goiter, is beyond our present knowledge, although it may be surmised that it gives rise to

* Osler: "On Chorea and Choreiform Affections," P. Blakiston's Son & Co., 1894.

certain metabolic disturbances, probably through the intermediation of the nervous system. It is a popular notion that fright is a common exciting cause of chorea, but this is only in part sustained by the facts in the case. At any rate, while fright played no part in the determination of the attack in the present case the symptoms were greatly aggravated during a quiescent period in the sequence of fright, although this was coincident also with the development of symptoms of acute nephritis and the withdrawal of arsenic. The condition of the patient at this time was so grave, the apathy was so profound, the prostration so great, the movements so violent, that I feared the patient had become uremic and would be overwhelmed by the intoxication. On resuming administration of the arsenic, improvement at once set in and although somewhat slow, it was distinct and steady until the symptoms of heart-failure, which I attributed to myocarditis, and profound anemia appeared and led to a fatal issue. We have here additional evidence of the specific utility of this valuable drug in the treatment of chorea.

I have in a previous communication (Medical News, February 7, 1903) reported a fatal case of polyarthritis complicated by choreiform symptoms and vegetative endocarditis occurring in a young man, seventeen years old, observed in my service at the Philadelphia Hospital.

NOTES ON THE WIDAL REACTION: (1) THE QUESTION OF DILUTION; (2) THE INFLUENCE OF JAUNDICE.*

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The method used in making the tests upon which this paper is based was described in full in the Mt. Sinai Hospital Reports, Vol. I, and in the Medical News, March 29, 1902. As a rule, dried blood was used for the tests, but in quite a number of cases the tests were also made with serum. In the larger number of the cases of jaundice to which I shall later refer, serum was used. For the general practitioner the use of the dried blood is undoubtedly much more practical than the use of serum. We have found that the dried blood, if properly sent to the laboratory, gives practically the same results as serum. The drops used are best made a trifle larger than the head of a pin. Should larger drops be used care must be taken that the specimen be dried before the blood coagulates. In a large number of experiments we found that the blood gave a better reaction after three or four hours than when used just after drawing—even after twenty-four hours the dried blood gives good results.

Until the spring of 1902 we were accustomed to make our reactions in the dilution of 1 to 20 only, but as it was claimed by many authorities that reactions ought to be made in the dilution of 1 to 50, we made it a rule at that time to make our reactions in the dilution of 1 to 20 and 1 to 50 (time-limit thirty minutes and one hour respectively).

Previous to the spring of 1902 and since that time, we have examined the blood in 1,500 cases of fever. Of these, 550 were cases of typhoid fever. In the 950 cases which were not typhoid fever, a Widal reaction was never reported positive even in a dilution of 1 to 20. This certainly points to the reliability of a reaction in a dilution of 1 to 20 when interpreted according to the method of considering only complete reactions as being positive.

We believe that it is advisable, if possible, to make such a standard in the judgment of reactions, that the report of a positive agglutination reaction to the physician should be equivalent to labeling his case as one of typhoid. The practising physician is not interested in a report saying his patient has or has not an agglutination reaction—he wants to know whether his patient has typhoid fever or not.

We will admit for the sake of argument that among the 550 cases of typhoid fever there may have been some cases of paracolon infection, and that the presence of the agglutination reaction in a dilution of 1 to 20 may simply have been a group-agglutination; but, if such a mistake does occur, it is not a serious one, for to the clinician a case of paratyphoid fever is to be considered and handled, at least for the present, as one of typhoid fever.

The question arises, why do we continue making reactions in a dilution of 1 to 50 if we have had such reliable results with a 1 to 20 dilution?

We have been surprised to find, in some instances, a positive result in a dilution of 1 to 50 when the reaction was negative or not clearly positive in a dilution of 1 to 20. There are, we believe, at least two explanations of what seems so anomalous a condition. In some instances at least, it is due to the fact that in a dilution of 1 to 20 the lytic action of the serum is so marked that one cannot obtain a clear picture. In some cases the explanation lies in the existence of bodies known as proagglutinoids. According to Shiga the proagglutinoids are bodies which are developed from agglutins through extraneous influences; they possess a greater affinity for the bacilli than the unchanged agglutins; they have lost the group (agglutinophore) which is the carrier of the peculiar agglutinating power, but have retained the other group (haptophore) upon which depends their attachment to the bacteria. Shiga[1] in a very interesting paper on this subject, after referring to the previous observations of Bail, Eisenberg and Falk, gives an account of his own experiments which prove the existence of such bodies. A short account of these experiments will, I think, be of interest here. By heat-

* Read before the Section on General Medicine, New York Academy of Medicine, November 17, 1903.

ing dysentery immune serum to 60° C. for an hour, or by shaking it with chloroform or exposing it to sunlight for a number of days, he obtained a serum which would agglutinate dysentery bacilli in high dilutions and not in low, whereas previously it had agglutinated in low dilutions as markedly, or even more markedly than in high dilutions. He applied the term "proagglutinoid zone" to those dilutions in which the reaction disappeared. He not only succeeded in producing a proagglutinoid zone with typhoid immune serum by heating it for four hours at 60° C., but he could, by the prolonged addition of chloroform to dysentery serum, almost completely change the agglutinins into proagglutinoids so that a reaction could not be obtained in any dilution. Further experiments proved that the proagglutinoids were attached to the bacteria and that the proagglutinoid zone could be made to disappear if enough bacteria were added to a mixture of non-agglutinated bacteria and a serum containing proagglutinoids.

Notwithstanding the fact that a 1 to 50 dilution will occasionally give better results than a 1 to 20, it is necessary to make the 1 to 20 dilution, because this is frequently positive before the 1 to 50 dilution becomes positive. Among 165 cases of typhoid fever we found a coincident positive reaction in 1 to 20 and in 1 to 50 in 127 cases. In 12 cases the reaction was positive in a dilution of 1 to 20 two days before it was positive in 1 to 50. In some instances even sixteen days elapsed before the reaction became positive at 1 to 50, and in 8 cases which were positive in a dilution of 1 to 20 there was no reaction in a dilution of 1 to 50 during the time of observation of the patients in the hospital.

From all these data it is evident that it is essential in performing the agglutination test to use dilutions of 1 to 20 *and* 1 to 50. It is even possible that the 1 to 100 or higher dilutions might be positive when the lower ones are negative. On this point we have thus far had no experience.*

The other point upon which I wish to dwell is the question of whether or not jaundice *per se* can cause a positive Widal reaction. On this subject quite some observations have been made, which we shall detail before we refer to our experiences.

Honl and Eisenberg,[2] and Heller[3] found that icteric serum was possessed of a certain amount of agglutinating power. Greenbaum[4] found a positive reaction in a dilution of 1 to 16 in cases of jaundice. The most extensive observations and experiments, however, were made by Koehler.[5] Koehler used for his experiments sugar-bouillon cultures of the typhoid bacillus; his time-limit was two hours and he considered clumps of four to be significant of the presence of agglutination. In 10 cases of disease of the liver, of which eight were icteric, he found an agglutination reaction present in six. The highest dilution in which he obtained the reaction was 1 to 40; very rarely 1 to 50, and once it was only 1 to 10. His first set of experiments was made with several varieties of bile. In the bile of dogs in which the common bile-duct had been ligated, he found a decided agglutinating power (even up to 1 to 160). Rabbit's bile was possessed of very slight agglutinating power. Human bile obtained at autopsy occasionally showed a distinct agglutinating power (up to 1 to 80). He had no opportunity of testing bile obtained intra vitam. In the bile of typhoid patients post mortem he found no increase in agglutinating power over the bile in other diseases.

In attempting to ascertain what constituent of the bile was responsible for the presence of the agglutinating power, he tested taurochol, glycochol, bilirubin, biliverdin, cholalic acid, glycocholic acid, cholesterin and sodium taurocholate, but found that none of these was possessed of any agglutinating power. Solutions of taurocholic acid, however, gave some positive results (up to 1 to 60). He obtained no result with the serum of rabbits into which he had injected taurocholic acid, but did obtain some positive results in dogs. The reaction generally appeared two or three days after the injection and lasted several days. He obtained results even with some samples of taurocholic acid which in themselves were possessed of no agglutinating power. The serum of dogs in which the bile-ducts had been tied off gave a slight agglutination reaction which disappeared after a communication was established between the gall-bladder and the intestine. On later injecting taurocholic acid into such animals, an agglutination reaction could again be obtained varying in strength from 1 to 40 to 1 to 50. The results in these experiments were not constant.

These experiments of Koehler's are of great interest in showing that taurocholic acid and bile cause a certain amount of agglutination, but they are not significant practically because in making diagnoses by means of the Widal test we deal only with complete reactions. This remark also holds true of his observations on the presence of an agglutinating power in the serum of patients with jaundice. For practical purposes it is inadvisable to use sugar-bouillon cultures, a time-limit of two hours is too long and we shall see that later observations on the whole are contradictory.

Sailer[6] in three cases of intense jaundice obtained no reactions. Zupnik[7] in seven cases of jaundice (two cases of cholelithiasis, one case of cholecystitis and four cases of Weil's disease) found "a more or less positive reaction." In two other cases of Weil's disease the reaction was negative. In one case of carcinoma of the

* Since writing the above we have encountered one case of typhoid fever in which the reaction was absolutely complete in a dilution (approximate) of 1 to 400 in one hour, and negative at all dilutions below and above. After four hours, there was slight clumping at 1 to 200, and stoppage of motility at 1 to 800; 1 to 1,600 was absolutely negative. This case was a typical one in the practice of Dr. Albert Kohn. It would seem necessary, therefore, in cases suspected of being typhoid fever, to make the test in a large number of dilutions.

liver without fever he found a positive reaction. He used both macroscopic and microscopic reactions in a dilution of 1 to 40 with a time-limit of eight hours. It is unfortunate that he does not state what he considers to be a positive reaction, and the time-limit is too long.

Eckhardt[8] describes two cases with a clinical picture of Weil's disease of one month's duration in which the reaction was positive at times in a dilution of 1 to 1,000. In these cases the agglutination reaction persisted even after the jaundice had disappeared. In eight cases of jaundice he obtained a positive reaction in a dilution of 1 to 100 in two hours and in one case up to 1 to 1,000. The bile obtained at autopsy and the bile obtained from biliary fistulæ was devoid of agglutinating power. He cites one case of jaundice in which the bile gave no reaction but the blood gave a positive reaction in a dilution of 1 to 100. There was no history of any previous typhoid infection. We will cite a case later which demonstrates that such a condition of affairs can exist in typhoid fever. He also unfortunately does not state what he considers to be a positive reaction. He is of the belief that his cases were probably cases of typhoid fever and bases his belief mainly on the persistence of the reaction after the disappearance of the jaundice. No further bacteriological examinations were made in the cases. We are also inclined to consider that his cases were typhoid fever, but in view of the fact that he obtained positive reactions so often in other cases of jaundice, we believe that less stress should be laid upon the significance of the reactions. In any event, the cases do not prove that jaundice *per se* can cause a positive Widal reaction.

Langstein and Meerwein[9] also made observations in a number of cases of jaundice. Their first case was one of obstruction of the common bile-duct by gall-stones with adhesions about the gall-bladder. The bile was possessed of no agglutinating power. The blood gave a positive reaction in a dilution of 1 to 100 in twelve hours. Later when some bile appeared in the stools they succeeded in obtaining only a partial reaction in a dilution of 1 to 20 in two hours. In two other cases of febrile jaundice in which the stools were not entirely acholic, the serum did not agglutinate the typhoid bacillus even in a dilution of 1 to 10; and in a fourth case of metastatic carcinoma of the liver there was an entire absence of any agglutination reaction.

Their first case is, however, not conclusive for two reasons. In the first place a time-limit of twelve hours is too long for a reaction in a dilution of 1 to 100, and secondly the question of whether the cholelithiasis could not have been due to typhoid infection is entirely ignored. The conclusion which has been drawn from these two cases that the serum of an icteric patient with cholangitis gives a positive reaction, whereas that from an icteric patient without cholangitis does not, is hardly warranted.

Joachim[10] describes two cases. The first was a case of febrile jaundice in which at the post-mortem examination purulent cholangitis and a thrombosis of the portal vein were found. In this case the blood gave a positive reaction with the typhoid bacillus in a dilution of 1 to 40 in two hours and 1 to 80 in fifteen hours (macroscopic and microscopic tests). From the spleen a paracolon bacillus was cultivated, which was agglutinated by the serum in a dilution of 1 to 40 in two hours. In the second case the jaundice was due to a carcinoma at the papilla of Vater, obstructing the common duct. The blood obtained from the cadaver sixteen hours after death(!) agglutinated the typhoid bacillus in a dilution of 1 to 10 in fifteen hours.

These observations also are of no great significance. In the first place the time-limit was too long for the strength of the reactions. The author does not state what he considers to be a positive reaction; and again, the reaction may have been a group-agglutination reaction. He believed that he was able to confirm the observation of Langstein and Meerwein that it is particularly in cases of cholangitis with jaundice that the blood gives a positive Widal reaction.

The observations of Koenigstein[11] are, we believe, more conclusive than any of those already mentioned. His reactions were made in a dilution of 1 to 10, 1 to 50 and 1 to 100 and were observed for a period of twenty-four hours. With bile he obtained only false reactions due to mucus, crystals and cellular elements. He could eliminate such reactions by filtering the bile. He examined 21 specimens of bile obtained at autopsy with negative results. The bile of rabbits and oxen also gave negative results. In two dogs in which he had produced jaundice by the subcutaneous injection of a hemolytic poison, he obtained a reaction in only 1 to 10 in one, and no reaction in the other. Among 11 cases of jaundice, seven gave no reaction whatsoever; the other four gave good reactions in a dilution of 1 to 10 and slight reactions in 1 to 50. He believes that in some cases such reactions may be group-agglutinations. He repeated Kochler's experiment with taurocholic acid, but could not substantiate his findings. When one knows that the writer considers an agglutination reaction to consist of agglutination with "incomplete paralysis of the bacteria" his negative results are doubly convincing.

Our own observations consist of tests made with bile and with the serum of jaundiced patients. Ten samples of bile were examined. These specimens were either normal bile or bile from cases of typhoid fever, chronic pancreatitis or cholelithiasis. In no instance could we get a positive Widal reaction. With some there was slight clumping, but in others there was absolutely no effect on the bacilli even in a dilution of 1 to 1. The sera of 35 cases of jaundice (exclusive of four cases to be described later) were tested. These cases included cases of appendicitis, malignant endocarditis, gall-stones with and with-

out cholecystitis, tumors of the liver and duodenum, diseases of the pancreas, a case of Weil's disease, two cases of acute yellow atrophy, a case of general miliary tuberculosis, some cases of catarrhal icterus, hypertrophic cirrhosis, one case of liver abscess with jaundice and cases of jaundice due to septic conditions. In not one of these cases was the serum possessed of any more effect on the bacteria than we often find in normal sera. Not one of them gave a reaction which was at all doubtful.

In only four cases in our experience have we met with a positive Widal reaction in patients with jaundice. The first case was one of paracolon infection reported by the writer in the *Journal of Medical Research* for 1902. In that case the patient had a positive reaction with the paracolon bacillus obtained from the blood in a dilution of 1 to 100 and the typhoid bacillus in a dilution of 1 to 200. At the autopsy healing ulcers were found in the intestine and the question had to remain an open one whether or not the patient suffered from a mixed infection due to the typhoid bacillus and the paracolon bacillus.

The second case was that of a woman who was in the hospital last year with an attack of typhoid fever complicated by cholecystitis. The Widal reaction was positive in a dilution of 1 to 50. She returned to the hospital yesterday with a severe attack of cholecystitis accompanied by marked jaundice and was operated upon by Dr. Lilienthal. The blood gives a positive Widal reaction in the dilution of 1 to 20. The bile and the markedly icteric urine give no reaction.

The third case was also one of typhoid fever with jaundice due to acute cholecystitis. The Widal reaction was positive in a dilution of 1 to 50 and typhoid bacilli were demonstrated in the fluid in the gall-bladder by Dr. Bernstein of the laboratory staff. The fluid in the gall-bladder in this case was not bile-stained, but consisted of thin seropurulent fluid. This fluid gave a positive Widal reaction in a dilution of 1 to 50.

The fourth case is one of such marked interest that I shall give the history in detail. The patient was a woman sixty-four years of age who was in good health up to the age of thirty-four years when she suffered from an attack of jaundice with severe colicky pains and passed gall-stones. There is no history of typhoid fever. One year before admission to the hospital she suffered from severe colicky pains, chills and vomiting; her skin became extremely yellow, the feces very light-colored, the urine very dark and she passed several gall-stones. She was well after this attack up to two weeks before admission to the hospital. Then she had a chill, vomited dark green fluid, had severe pain in the upper right quadrant of the abdomen and marked jaundice. She was operated upon by Dr. Lilienthal who found a large purulent exudate around the gall-bladder. The Widal reaction was positive in a dilution of 1 to 50 and typhoid bacilli were isolated by Dr. Bernstein from the pus found at the operation.

It will thus be seen that from our observations there is nothing which convinces us that jaundice *per se* can cause a positive Widal reaction, and have pointed out such deficiencies in the cases cited in the literature, that all we can state is that, while icteric serum may at times be possessed of a certain amount of agglutinating power, there is no definite proof at present that it can produce sufficient agglutination to interfere with our clinical diagnosis.

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A BRIEF NOTE ON THE X-RAY TREATMENT OF GLANDULAR TUBERCULOSIS.*

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IT is now just a year since I had the possible value of the X-rays in the treatment of glandular tuberculosis, accidentally demonstrated to me, through the results obtained in the case to be reported this evening. For a year this patient has remained entirely well, until just within a few weeks, when he began to show evidences of a tuberculous intracranial lesion. His progress has been so satisfactory since again instituting X-ray treatment, and promises so well to continue to complete recovery, that I present him to you this evening for your examination, with the hope that I may be able to bring him before you in a few months, cured.

A year ago I knew of not one case of glandular tuberculosis thus treated, and have since naturally been on the lookout for reports of any such. Last winter I met the first reference to the subject in the third edition of Dawson Turner's manual, which had then just appeared. He briefly mentioned six cases of glandular tuberculosis, two of them cured and the others greatly improved, by exposures to the X-rays.

In the most satisfactory book on X-ray therapy which has yet appeared, that of Pusey and Caldwell, just from the hands of the publishers, I find reported five cases, in all of which there was more or less marked reduction in the size of the glands, and in one complete disappearance, from similar treatment. Pusey says as yet there is no literature on the subject, but that there is reason to believe a general attempt is being made at the treatment of this condition with the X-rays.

I have talked to a few physicians who devote their time to this class of work, without gaining much additional information. Dr. Ells-

* Read before the Medical Society of the District of Columbia Oct. 14, 1903.

worth, Dr. Williams' assistant at the City Hospital, Boston, however, was under the impression, without referring to their records, that several such cases had been successfully treated in the clinic, and thought they were reported in Williams' book. But on consulting it I find only the general statement, that even the largest tubercular glands respond surprisingly well to treatment with the X-rays.

The case I present this evening is also most interesting as an illustration of the difficulty, at times, of differentiating the early stages of primary glandular tuberculosis and Hodgkin's disease. The identity of the two diseases has been much discussed, but I think at last disposed of negatively by recent work, notably that of Reed, as recorded in the Johns Hopkins Hospital reports for 1901-2 (p. 131). To understand the extreme loss of weight of this patient it is necessary to bear in mind the more severe manifestations of glandular tuberculosis as seen in cases, for example like that of Delafield (*New York Medical Record*, 1887, p. 424). Such cases bear the same relation to the chronic forms of glandular tuberculosis, that "galloping consumption" does to fibroid phthisis. Courmont, Tixier and Bonnet (*Jour. de Physiol. et de Path. Gen.*, 1889, 1, p. 826) report a case similar in almost every detail to mine. Another similar case is that reported by Ardouin (*Bull. de la Soc. Anatomique de Paris*, November, 1897, p. 846). These cases of "Lynphadénie Aleucémique" due to the tubercle bacillus have also been studied by Dulcion (*Bordeaux Thèses*, 1896), Sternberg (*Zeitschr. f. Heilk.*, 1898, Bd. xix, p. 21), and others.

I hesitated to employ tuberculine for diagnostic purposes, because the profession is not yet of one mind as to the harmlessness of this procedure, though I think the testimony of Osler, Whitaker, Anders, Trudeau, Shattuck and others should lead us to its adoption. In five cases of Hodgkin's disease in the *Johns Hopkins Hospital Bulletin* just referred to, tuberculine gave negative results, and Reed also states that bad effects from its use have not been seen.

Mr. S. came to me the middle of July, 1902. He had never been sick until present illness began, six months ago, when he noticed a slight swelling on the left side of his neck. Its increase in size has been very slow, but he has progressively lost weight, amounting now to 55 pounds. He has never had syphilis or any other venereal disease. His family history is uninteresting save for the not very significant fact that of nine children, two sisters died of tuberculosis.

A careful examination threw no further light on his trouble. A blood examination showed a slight secondary anemia, with leucocytes about normal as to number and kind. My first impression, as I told him, was that the swelling was tuberculous.

September 1 of the same year he again reported to me. He had lost an additional ten pounds in weight. During my absence from the city in August he consulted one of our leading surgeons, who advised against any operation, without committing himself to a diagnosis. Largely influenced by this opinion, and thinking he leaned toward a diagnosis of Hodgkin's disease, I began exposing the affected side of the neck twice a week to the X-rays, for fifteen to twenty minutes. He had taken no medicine, nor did I then prescribe any.

Imagine my delight at seeing the man rapidly improve. In two weeks he had made the astonishing gain in weight of fifteen pounds. During another four weeks he almost entirely regained his normal feeling of well being and strength, though the further gain in weight was only a few pounds. The swelling in the neck had been reduced one half in size. It was very apparent to myself, and all his friends, he was rapidly getting well. I desired much to know what I was curing, and requested permission to cut out a piece of the swelling for microscopical examination, to which he consented with the suggestion that if the mass could be removed without danger it should be done.

I found three enlarged lymphatic glands, about the size of walnuts, lying deeply under the sternomastoid muscle. Above and below the other glands of this deep lymphatic chain were also enlarged, but not to the same extent, nor sufficiently to have allowed them to be palpated, on account of their deep situation. The incision was extended from the clavicle to the mastoid process and all the glands removed with the exception of two, high up under the angle of the jaw. These were left, as their relations were such that their removal would have added greatly to the risk of the operation.

Under the microscope there was the unmistakable histological picture of tuberculosis—the entire section showing caseous degeneration, with the structure of individual tubercles faintly discernible in places.

Nothing further was done for the patient. After a temporary loss of five pounds following the operation, he rapidly gained in weight. The two glands left under the angle of the jaw increased in size for the first four months, until they could be seen as well as felt. Then they gradually grew smaller and at the end of ten months had entirely disappeared, and the patient had gained in all forty-five pounds, or within about twenty pounds of his normal weight of two hundred and twenty.

He remained in good health until this fall, when he reported to me again about the first of September. He has lost eight or ten pounds in weight. He complains of loss of sense of taste; of his tongue feeling swollen; and of his left arm and leg being numb and weak. His speech is hesitating and thick, and cerebration is not normally active. His memory is poor. His tongue projects to the right side. The knee-jerk on the left side is markedly exaggerated. He cannot support himself on the left leg alone. These symptoms very clearly pointed to an intracranial

lesion, which, in view of his previous history is undoubtedly tuberculous—involving the meningeal lymphatics. The gradual appearance of these symptoms and the prompt improvement which again followed exposures to the X-rays, without any other treatment, supports this interpretation. There is a high blood pressure of 210 mm., but this, in my opinion, is not to be taken as an evidence of arterial disease, but simply a result of the localized meningeal tuberculosis. The radial arteries are soft, heart normal in size, urine normal in quantity and containing no trace of albumin, and in fact nothing to suggest an arteriosclerosis. A syphilitic endarteritis would not have thus responded to X-ray treatment. Several physicians who have seen this patient with me have suggested the administration of potassium iodide. He has not taken a drop of medicine, however, since he came under my care.

In endeavoring to satisfy myself that the involvement of the cervical lymphatics was the sole cause of all his loss in weight I took several radiographs of the chest, which I think would have revealed any associated trouble in the lungs.

His improvement already, at the end of a month of renewed X-ray treatment—exposing the head to the rays three times a week—has been most satisfactory. He can support himself on his left leg—showing its increased strength—and feels generally much better. Even though the ultimate result is not what I now expect, the beneficial effects of the X-ray treatments have been so marked I deem it of sufficient interest to bring the matter before you.

[NOTE.—December 17, 1903. Two months have elapsed since the above communication was read. The patient is now practically well and has returned to his work. For a short time he did not show any further improvement. Dr. Belt examined his eyes for me again and reported that the papillæ were redder than normal and that in each eye there was a small patch of choroiditis. I increased the frequency of the X-ray treatments at two feet with a high vacuum tube excited by a powerful coil, and soon he again showed further progress toward cure. Dr. Belt reports to-day that all evidence of the choridial trouble has disappeared. The patient is quite himself mentally. I find the exaggerated knee-jerk on left side has disappeared also, and that the power in left arm and leg is about normal. He says the feeling of numbness and cold in them is gone.]

Encouraged by this result I have used the X-rays in one other case, one recently discharged from the Sanitarium at Saranac Lake as "arrested." The lungs in this case were affected secondarily to the tuberculous process in the cervical glands. The lungs had rapidly improved at the Sanitarium, but the glands had increased in size. The advisability of their removal was considered by his physicians there, but decided against for fear of bringing the tuberculous process in the lungs into renewed activity. On his way to the Southwest he stopped in Washington for two weeks, and I exposed the glands daily to the X-rays. Even during this short time they diminished appreciably in size, and a few weeks later he wrote me they were hardly half as large as before.

MEDICAL PROGRESS.

MEDICINE.

Behavior of Proteids in Diabetes.—In severe forms of diabetes part of the proteid molecule itself is excreted as sugar, but it is interesting to note that the various kinds of proteid behave differently in this respect. Thus the ingestion of casein may increase the glycosuria considerably, while globulin from the blood and ovalbumin may have little influence. It may be stated that albumin, which is rapidly decomposed in the body, is apt to aggravate the diabetes. In a patient observed by W. FALTA (Corresp. f. Schw. Aerzte, Nov. 15, 1903) the glycosuria rapidly disappeared when meat was substituted for yolk of egg, which, by virtue of its lecithin, also exerts an unfavorable influence upon the assimilation of sugar.

Etiology of Aneurisms of the Aorta.—Aortic aneurisms caused by trauma in perfectly healthy individuals are very rare, but certainly do occur. H. ARNSPERGER (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 5 and 6) believes that small tears are replaced by cicatricial tissue which cannot withstand the continuous pressure. The injury is generally very severe and directed against the thorax. Infectious diseases as a cause are of more importance in the smaller vessels than in the aorta, but it is possible for an infectious thrombus to lead to ulceration with weakening of the walls or for an acute aortitis to be followed by predisposing, chronic changes. Alcohol, nicotin, lead and senile atheroma all play a subsidiary rôle as compared with syphilis. The pathological study of most all aneurisms will show lesions characteristic for lues and rupture of the elastic membrane, such as have been described by others, are hardly ever seen.

Infection with Eustrongylus Gigas.—A very peculiar case of chyluria has been very carefully studied by D. STÜRTZ (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 5 and 6). The patient, an Australian, came to Europe to be cured of his disease, which had hitherto puzzled the physician, who had vainly sought for filaria in the blood. After many negative results, the author finally discovered in the urine an egg of *Eustrongylus*, a rare parasite found in animals and occasionally at autopsies. Since all treatment was unavailing, and the seat of the parasite could with probability be located in one renal pelvis, a nephrotomy was performed without discovering any lesion, so that a communication between ureter and lymphatic system was most likely seated lower down. A laparotomy was refused and the patient left without being cured of his chyluria. The case constitutes the first infection of its kind diagnosed during life. The parasite is one of the largest worms known and possesses a blood-red color; it prefers the renal pelvis of animals, and gradually brings about a pressure atrophy of the kidney and otherwise seriously endangers life. With filaria there is an actual obstruction of the lymph-channels with secondary rupture, but the *Eustrongylus* probably injures the vessels directly, and thus leads to very persistent fistulæ. It is likely that a long ether-narcosis will kill the animal, since no more eggs were found after the operation. An exact localization requires cystoscopy and ureteral catheterization. The worm is probably introduced into the system by eating uncooked fish. The eggs readily

develop in water or moist earth and an embryo escapes in five to six months, whose life-history is very short. The friability of the eggs probably explains the rare occurrence of the parasite. All attempts to infect fish and dogs with the voided eggs of the patient were unsuccessful.

Thrombosis of Renal Vein.—A very rare complication of chlorosis, thrombosis of the renal vein, has been observed by H. Reese (Deutsch. Arch. f. klin. Med., Vol. 78, Nos. 5 and 6). The patient had already recovered from a bilateral thrombosis of the saphenous veins when she was suddenly seized with vomiting, severe pain in the kidney region, pronounced albuminuria without casts and marked enlargement of the kidney. There also was a slight rise of temperature and a diminution in the amount of urine with rise of the specific gravity. The patient slowly convalesced with rest and iron, but three months later traces of albumin were still present in the urine. The most dangerous complication, pulmonary embolism, did not develop. The case illustrates well that iron is not a prophylactic for thrombosis, for the patient had been taking Blaud's pills for weeks before the complication appeared.

Etiology and Pathogenesis of Black-water Fever.—There are three facts which seem to point against the identity of black-water fever with malaria: The distribution of both diseases is not the same, parasites are not generally detected in the blood in the former disease and quinine is without effect. These statements, though correct, are apt to mislead, according to A. Plehn (Virchow's Archiv, Vol. 174, No. 3). The fever occurs in malarial regions near the tropics; the reason it is not more common in cooler climates is because the system has time to recuperate from the infection during winter. Plasmodia are not found because the disease really constitutes an acute disintegration of red cells, thus setting free the plasmodia, which rapidly dissolve in the serum; if the blood is taken very early in the attack, they can generally be detected. The inefficiency of quinine is also evident from this; since it also induces hematocytolysis, it is clear that it is more apt to do harm. Two factors are necessary to induce an attack: a predisposition and some inciting cause. The predisposition is caused by an intense, continuous and often insufficiently treated infection, such as is common in the tropics. Any variety of parasite may be found, but the estevo-autumnal form is most common. No doubt the number and virulence of the unknown latent form which keeps up the infection during the afebrile period, plays an important part. A diminished resistance of the red cells, probably a manifestation of functional exhaustion on part of the overtaxed blood-forming organism is invariably present, together with an unstable condition of the entire nervous system. The exciting cause of the attack is usually a dose of quinine or some other drug tending to injure the cells; less frequently, a cold, some injury or an emotion is mentioned. The attack is initiated by a severe chill, cardialgia, cyanosis and dyspnea; soon the skin becomes jaundiced and the patients complain of burning on urination. The jaundice is peculiar in that it lacks the greenish tinge and is usually not accompanied by itching. Despite the presence of bile in the blood, and often in large amounts in the feces, the urine generally does not contain appreciable quantities. If the blood is examined during the height of the attack, few changes are noticed besides an anemic condition of the cells, since all abnormal and less resistant forms have already disintegrated. Thus with 20 per cent. hemoglobin and one million red cells, the latter may appear almost normal. In two to three days the jaundice and albumin disappear and the hemoglobin begins to rise, generally by 2 to 3 per cent. daily. There is every reason to believe that the chief destruction of red cells goes on in the liver and spleen. The renal changes are not due to an actual nephritis, but to a functional disturbance of renal activity; when anuria develops, it has a purely mechanical cause and is usually not followed by uremia.

Excretion of Salts in Nephritis.—If a healthy person is kept on a uniform diet for several weeks and then a certain amount of chlorides, phosphates and sulphates be given, these salts may be excreted in twenty-four to forty-eight hours, but occasionally the excretion may begin only in twenty-four to forty-eight hours and last for three days or more, even where there is no nephritis. E. v. Koziczkowsky (Zeitsch. f. klin. Med., Vol. 51, Nos. 3 and 4) has studied the same question in nephritis and finds that in cases without edema, two types may be recognized as far as the chlorides are concerned. In one, the ingestion of a medium quantity of salt is followed by diuresis with a diminished percentage, in the other the percentage is constant and not influenced by the amount of urine. In incompensated nephritis with edema, the percentage is frequently diminished, if salt is given. There seems to be a distinct antagonism between chlorides and phosphates, for the latter are excreted most freely where the retention of chlorides in the system is greatest and vice versa. The same holds true for the sulphates. From a prognostic point of view, an increased excretion of chlorides in nephritis, after a period of retention, is a favorable sign, hence a diminished excretion, an unfavorable one. A prolonged increased discharge of phosphates will speak for a retention of chlorides. A drug, such as diuretin, which would wash the chlorides out of the system, would have a favorable influence upon the edema were it not for the injurious effect upon the renal epithelium. Heart tonics are in place, as they help unloading the system of salt, but salt itself should be restricted in the diet. The so-called thirst-cures do not rest upon a sound basis, since the retention of salt and not that of water is the primary cause of edema. If saline intravenous or subcutaneous infusions should be necessary in the course of the disease, they should be hypotonic, that is, should contain less than 0.91 per cent. of salt.

Antistreptococcus Serum in Articular Rheumatism.—The employment of sera in this disease has been made the subject of careful study by Menzer, who claims that the lymphatic ring in the pharynx affords the point of entrance for the cocci. His serum is produced from streptococci derived from the anginæ associated with articular rheumatism. As the serum is not passed through animals, however, exact dosage is not possible. A. Schmidt (Berl. klin. Woch., Dec. 7, 1903) has lately made a test of this agent in 15 cases, most of which were characterized by an early passage from the acute into the chronic stage, and in which other remedies had met with little or no success. From one to eight injections were given in each case, the dose varying from 5 to 20 c.cm. The quantity was rapidly increased until a distinct reaction was obtained, the next injection being then delayed until the effects of the other had fully subsided. The reaction varied greatly in different patients. In some there was high fever and marked local changes, in others only the latter appeared and in a few no change at all took place. Local reactions were only observed in the joint where the injection had been made, the others remained free. In summarizing his results the author states that definite benefits were seen in six cases, a certain degree of improvement in four and no effects at all in five. The good effects consisted in an abatement of the pain and increased mobil-

ity. The author does not believe that this serum exerts a specific action similar to that produced by diphtheria serum or tuberculin. He admits, however, that undoubted results have been obtained especially in the subacute cases. In acute cases very little effect was observed and in chronic cases none at all. It does not seem advisable to employ the serum until all other methods have failed and a better standardizing is at present a great desideratum.

Etiology of Yellow Fever.—A report has been published recently containing the results of investigations by the U. S. Marine Hospital Service, in which is described a protozoan parasite found regularly in certain mosquitoes that had bitten yellow fever patients. To this organism was given the name of *Myxococcidium stegomyiæ*. JAMES CARROLL (Jour. Am. Med. Ass'n, Nov. 28, 1903) has carefully investigated these claims and believes that the question does not stand the test of scientific criticism. He shows that the fusiform stage of this organism is not connected in any way with the transmission of yellow fever. It is apparently not a protozoan parasite, but a yeast fungus in its fusiform stage, the only form in which it is constantly present, it shows the characteristic budding, staining affinities and spore formation of a blastomycete, and it is found with considerable regularity in both male and female mosquitoes that have been purposely fed on overripe bananas to which a culture of wild yeast has been added in the laboratory. The organism has not hitherto been found in repeated examinations of mosquitoes of the genus *Stegomyia* that have bitten yellow fever patients in the early stages of the disease, when such insects had been fed only on blood, dry sugar and water. This statement applies only to mosquitoes that are known to have reproduced the disease in human beings.

Titration of Gastric Juice.—This curious observation has been made by F. VOLHARD (Münch. med. Woch., Dec. 15, 1903), who states that if some albumin is added to gastric juice, phenolphthalein will eventually give much higher values than at first, and the change of color will take place considerably later than with litmus. This is best explained by the fact that peptone binds alkali just as readily as it does acid and that phenolphthalein indicates only the presence of free alkali. It is therefore much more accurate to determine the total acidity with alizarine or with red and blue litmus paper. Töpfer's method is based on wrong principles, but gives fairly accurate results; the alizarine does not indicate the free hydrochloric acid, but the total acidity and by subtracting the phenolphthalein figures from those obtained with alizarine, the combined alkali would be obtained which is about the same as the combined acid.

Detection of Blood in Gastric Contents and Feces.—The simple inspection of feces and gastric juice for the presence of blood is never sufficient since small amounts will not alter the color. The spectroscopic method is very convenient, though it demands an expensive apparatus; where this is at hand it is best to convert the hemoglobin into hematoporphyrin by the addition of a small amount of concentrated sulphuric acid. D. SCHMILINSKY (Münch. med. Woch., Dec. 8, 1903) prefers the guaiac test to the hemin test, since the amount of material employed in the latter is too small. Great attention must be paid to the diet and everything containing blood or chlorophyl should be carefully avoided. Where there is no danger of a large hemorrhage, some slightly irritating food, such as coarse bread, may be added so as to slightly irritate the ulcerated surface. The examination begins on the third day and all hemorrhage from the nose, mouth or anus must be carefully ruled out. Frequently it is impossible to avoid slight bleedings with the stomach-tube; in such cases the feces alone must decide. A small amount of these are mixed with acetic acid and then shaken with ether, which is poured off after the fluids have separated and then mixed with five drops of a 1 to 5-per-cent alcohol solution of guaiac, and ten drops of oil of turpentine or peroxide of hydrogen. In the presence of much blood the ether will turn bluish violet or blue; with smaller amounts there is a definite play of colors in the case of feces: First green, then brownish-red, then violet, and finally blue. With small amounts of blood, green alone may result; this is not, however, characteristic for blood. Where the test is repeatedly positive, the presence of an ulcer, cancer or a severe disturbance of motility is almost certain.

Cyclical Albuminuria.—A contribution to the etiology, prognosis and treatment of this condition, based on his clinical experiences, is made by HAUSER (Berl. klin. Woch., Dec. 14, 1903). He claims that it is necessary to distinguish more closely than heretofore between cases of orthotic albuminuria in which there are to be found occasionally a few structural elements in the sediment and those in which they are absent, even after repeated examinations. The former class he considers true nephritis. Most observers agree that the disease is very apt to follow acute infectious diseases or sometimes an acute nephritis. The author's material comprised 14 cases in which he made careful and repeated urine examinations for several years. These were grouped in two classes. In one the orthotic albuminuria developed after a mild or severe acute nephritis, which, in spite of appropriate treatment, never was fully cured. Here the formed elements gradually disappeared, but the periodical albuminuria remained. But even in the other set of cases, a previous infectious disease, most frequently scarlet fever, seemed to act as a causative factor. Another circumstance which showed an apparent connection between the two conditions, was the fact that the children who had presented a cyclical albuminuria at some time, readily developed an albuminuria sometimes with casts after comparatively slight infections, such as an angina. The author has found, moreover, that most of these patients present symptoms which clinically bear a close resemblance to nephritis. He believes that this form of albuminuria is probably due to circulatory disturbances, to the action of toxins or to the irritation produced by metabolic products which result from unusual muscular exertions. These act on a kindey impaired in its functionating powers by anatomical changes brought on by infectious processes, and result in an occasional excretion of albumin. The seat of this lesion is in the outer epithelial layers of the glomeruli. The author's views as to treatment are as follows: Dietetic measures in themselves are insufficient; nevertheless he would institute at the beginning of the treatment a form of rest cure and also forbid all articles of diet which might produce renal irritation. The patients are restricted to an exclusive milk and vegetable diet for a considerable period. Only after the urine has been free from albumin for a period of several weeks, were the patients gradually restored to an albuminous diet. Efforts at prophylaxis by giving a diet without fluids were unsuccessful. Aside from the discomfort produced, it was found that the small quantities of concentrated urine invariably contained more or less albumin. Energetic diaphoresis also failed. It seemed that the most favorable forms of treatment consisted of diuretic measures and good results were noted from the administration of the various alkaline mineral waters. This seems to confirm the supposition that a nephritic process is probably the cause of the trouble. He sums up his experience in the treatment of this

class of cases as follows: The kidneys must become accustomed to the demands made upon them by the muscular system and this can only be accomplished by a graduated system of diet and exercise. Too much of the latter he has found to be harmful, and constant observation for prolonged periods should be the rule.

Immunization Against Tuberculosis.—The numerous difficulties attending attempts at immunization with either human or bovine bacilli are claimed to have been overcome by F. F. FRIEDMANN (Deut. med. Woch., Dec. 17, 1903). He has succeeded in rendering guinea-pigs and other animals immune to virulent doses of tubercle bacilli by previously injecting tubercle bacilli derived from a large turtle which had died from spontaneous tuberculosis. These injections are followed by a local infiltration which soon heals without any scars, and the animals are left in good health, while they tolerate without reaction doses of human and bovine infection which would otherwise be fatal. When killed, after three months, examination showed only occasional scattered minute nodules similar to those described in other immunized animals, but without containing any bacilli. He also noted that turtles infected with turtle tuberculosis soon die with bacilli scattered through all the organs, but if previously treated with human or bovine cultures, they are uninjured by injections of turtle tuberculosis. The author is now making efforts to immunize larger animals by this same turtle culture. As the guinea-pig did not appear to be harmed, the author believes that other animals will also remain free. But, on the other hand, as the guinea-pig, which is a most susceptible animal, is so readily immunized against tuberculosis from other sources by this method, it must be assumed that the turtle bacillus possesses high immunizing power. Further developments of this method are awaited with interest.

Albuminuria as an Accompaniment of Diabetes Mellitus.—It is probable that if albumin makes its appearance in the urine in the course of diabetes, it is significant of the development of unsatisfactory conditions. It usually disappears with the establishment of more favorable signs. F. W. PAVY (Lancet, Dec. 5, 1903), from an analysis of 17 cases, concludes that there are no grounds for believing that the temperate use of alcohol in these cases is prejudicial. If not used in moderation, however, the damage inflicted throughout the system by the impairment of the kidney is decidedly grave. Albuminuria in connection with diabetes may exist for a long time without leading to any symptomatic indication of its presence. It is, therefore, less significant in these cases than in ordinary conditions of nephritis, making it evident that albumin and casts have a different signification according to the conditions with which they are associated. Experience shows that even apart from diabetes, they are met with frequently in persons of advanced age who present no other symptoms of renal trouble. That they are insignificant is often shown by the fact that time may pass without the development of further symptoms.

PHYSIOLOGY.

The Biological Function of Calcium.—In an investigation of the relation which calcium bears to the enzymatic process that results in the coagulation of the blood, L. SABBATANI (Arch. Ital. de Biol., Oct. 10, 1903) finds that calcium is present in the ionic state, and that the amount of calcium-ion sufficient to bring about coagulation is very small, much less than the total quantity of calcium normally present in the blood. This hypothesis explains rationally a large number of phenomena relating to blood-coagulation, namely, as follows: (1) All the physical causes that diminish the degree of ionization can produce incoagulability (cold, great molecular concentration). (2) All those reagents, which, like the oxalates, fluorides, and alkaline carbonates, prevent coagulation by combining with the calcium in the blood, produce this result when present even in very small doses. Upon the basis of his researches the author concludes that the coagulation of blood requires the presence of Ca-ion, whose concentration may vary between wide limits; this concentration has a minimum and a maximum, below and above which respectively the blood remains indefinitely in a liquid state. The blood will not coagulate if by means of physical or chemical reagents the Ca-ion is made to go beyond the above limits.

A Glycolytic Substance Isolated from Yeast.—That nucleohistone determines the fermentation of the monosaccharides is apparently established by the researches of A. HERLITZKA (Archives Ital. de Biol., Oct. 10, 1903). The question is then asked: Can the nucleohistones be classed among the soluble ferments? The latter are considered to be the product of living protoplasm, while nucleohistone is an integral part of protoplasm, indeed, its most highly differentiated part being an important constituent of the nucleus. It would seem that the numerous catalytic phenomena discovered within the past few years as the result of the action of nucleohistones, are to be attributed not to the action of enzymes, but to the direct action of living protoplasm. Distinguished from enzymes, these substances would be termed "plasmozymes."

Acapnea, a Result of Lowered Barometric Pressure.—A marked diminution in the carbonic acid in the blood resulting from a lowering in the barometric pressure, has been noted by A. MOSSO and G. MARRO (Archives Ital. de Biol., Oct. 10, 1903), who apply to this condition the name acapnea. The considerable variation in the content of carbonic acid following a change from the respiration of air at ordinary pressure to that of rarefied air, in a very short time, cannot, according to the authors, be explained on the basis of a simple phenomenon of physics. It must be the result of the chemical decomposition of constituents of the blood and tissues.

The Hydrolysis and Synthesis of Fats by Platinum Black.—It is now generally believed that the action of the various ferments is the same as that of the catalytic agents used in chemistry. Bredig was the first to show that colloidal solutions of gold, silver, platinum, etc., have an action similar to that of certain enzymes in splitting hydrogen peroxide into water and atomic oxygen. Numerous other chemical transformations have been brought about by finely divided metals, namely, the oxidation of alcohol to acetic acid, the decomposition of dilute oxalic acid, the oxidation of pyrogallol, the inversion of cane-sugar, etc. In a series of interesting experiments, HUGH NEILSON (Am. Jour. Physiol., Dec. 1, 1903) found that platinum black can imitate the action of lipase, the fat-splitting ferment. In comparing the catalytic action of platinum black with that of lipase on ethyl butyrate, the following facts were observed: Platinum black accelerates the hydrolysis of ethyl butyrate, as lipase also does. But the action of platinum is slower. The action of the platinum increases with the increased concentration of the platinum. This is also true of lipase. The action increases with the temperature, reaching into maximum at 50°, which is somewhat higher than the lipase. The action of the platinum is independent of the concentration of the ethyl butyrate, which seems also to be true of the action of lipase. Poisons, with the exception of sodium fluoride and hydrocyanic acid, affect the catalytic action of platinum in a manner quite comparable to their action on lipase. Platinum

black synthetizes butyric acid and ethyl alcohol into ethyl butyrate, as shown by increasing odor of ethyl butyrate and saponification giving odor of butyric acid. This synthesis is also brought about by lipase.

Effect of Water and Food on Gastric Secretion.—Most of the reported experiments upon the effect of food on the secretion of the stomach are faulty, since the food was chewed and swallowed and thus an irritation of the olfactory and gustatory nerve brought about which was responsible in part for the hydrochloric acid secreted. G. LANG (Deut. Arch. f. klin. Med., Vol. 78, Nos. 3 and 4) repeated the experiments with water, proteids, carbohydrates and fat, on perfectly healthy individuals, but took the precaution to introduce the food with the stomach-tube. He reports as follows: Water gives negative results; the expressed fluid was not at all or only faintly acid. Starch also proved an indifferent body; sugar did not bring about any appreciable acidity, but the amount of fluid expressed was larger than with starch. Whether the slightly hypertonic fluid caused a secretion of water from the stomach walls or whether the motility of the stomach was actually impeded, could not be decided. When fat was employed, the expressed fluid contained a much higher percentage of this than the ingested fluid, since water leaves the stomach more readily than fat. Probably the fat irritates the pylorus reflexly as soon as it reaches the duodenum, thus causing a partial closure of the stomach, while the water is absorbed from the gastric mucous membrane. In a case of nervous dyspepsia, where plain water gave rise to acid secretion, fats actually diminished the acid, but with butter the percentage of organic acids was high, probably owing to the fat-splitting ferment of the stomach. Gelatine, though normally acid, was expressed nearly neutral, possibly owing to an alkaline pyloric secretion. The same pyloric closure was noticed here. Proteids were found to be the only food-principles which cause hydrochloric acid secretion, though the amounts were always much smaller than occur with the usual test-meals. It follows, from all these experiments, that gastric secretion is affected more strongly by reflex stimulation than by direct irritation. The reflex stimulation is strongest, if chewing is accompanied by a pleasant sensation, as in the case of palatable food, than with pungent articles such as mustard, which are more apt to excite disgust.

Origin of Glycogen from Proteid.—The question, if proteids alone can bring about a deposit of glycogen in the liver, has apparently been solved by C. HIRSCH and D. ROLLY (Deut. Arch. f. klin. Med., Vol. 78, Nos. 3 and 4). Rabbits were rendered glycogen-free by starvation and strychnine-tetanus, after which they received subcutaneous injections of colon cultures, so that a toxic fever set in. After a certain time the animals were killed and large deposits of glycogen were found in the liver and muscles which had formed owing to increased proteid destruction.

Action of Morphine on Animal Heat Mechanism.—An inquiry to determine how morphine acts to cause the profound fall of heat production and temperature has been made by E. T. REICHERT (Univ. Penn. Med. Bull., Nov., 1903). Two series of experiments were made, one being in reference to the temperature curve in normal animals, and the other in reference to the specific actions upon the thermogenic mechanisms. The latter consisted of a number of series in which sections of the cerebrospinal axis were made at various levels, thus eliminating from time to time certain portions of the heat-producing apparatus, and thus determining by exclusion the parts acted upon. He found that morphine exerts coincidently thermodepressor and thermo-augmentor actions, the former being by far the most important; and that the thermodepressor effects may be preceded or interrupted by thermo-augmentor effects. The thermodepressor action is exerted solely upon the caudate thermo-augmentor center. The thermo-augmentor action is exerted chiefly upon the pontobulbar thermo-augmentor center, and to a very limited extent on the skeletal muscles. It was also found that morphine and codeine are direct antagonists in their actions upon the caudate center.

NEUROLOGY AND PSYCHIATRY.

Progressive Myoclonus Epilepsy.—In an interesting pamphlet, H. LUNDBORG goes into a detailed description of progressive myoclonus epilepsy, which he has made the object of special study. The disease generally begins acutely during late childhood without ascertainable cause. Girls are generally affected earlier and more frequently than boys. The first symptoms are nocturnal epileptiform convulsions which may be preceded for some time by nocturnal incontinence. After several years, during which the attacks become more frequent, myoclonic symptoms develop. In rare instances the myoclonic symptoms precede or appear simultaneous with the convulsions. The course is chronic and progressive; soon the patients will become helpless and general marasmus will appear if some intercurrent disease does not carry them off. Three distinct stages may be recognized: (1) The epileptic-tetaniform stage. Here the condition is first diagnosed as epilepsy, but soon the tetaniform character of the convulsions will be more pronounced; the patients awake suddenly and complain of a painful spasm in different parts of the body. The mildest attacks merely amount to several rapidly repeated twitchings in the extremities; the severer ones may last half an hour and may closely simulate tetany in that the twitchings are so rapid that the muscles cannot relax in the interval. Occasionally consciousness is lost here, perspiration and salivation are increased, but urine and feces are not voided involuntarily. Every manipulation aggravates the suffering, but as the attacks increase in frequency and appear almost every night, they become milder, diurnal symptoms appear and the patient enters the second, the myoclonic-epileptiform stage, which is of much longer duration, and may last decades. Tremor, fibrillary and fascicular disturbances of motility are noticed and myoclonic twitchings make their appearance, first in the upper, then in the lower extremities, trunk, neck, face, then the diaphragm and pharyngeal and laryngeal muscles, and finally the ocular muscles and sphincters. It is particularly characteristic that the severity of the disease varies on different days, and distinct cycles, lasting several days to weeks, may be noticed. External irritants of all kinds and psychical disturbances aggravate the twitchings. The patellar reflexes are usually increased, nutritive disturbances are absent, but in time a certain degree of muscular rigidity may appear. In the later periods of this stage, psychical depression is pronounced, intelligence is on the decline and the patients become stupid and capricious, and not rarely violent. The terminal stage is marked by gradually increasing decay and cachexia. The epileptiform convulsions cease entirely, the periodicity is less regular, and the patients are almost constantly in a semi-stuporous condition, interrupted only by the myoclonic twitchings. Despite all care the course is steadily downward. The etiology of the disease forms a very interesting study. Generally several members of the same family are affected, while other members often give evidence of diseased nervous systems. Thus in one family, whose records dated back for over a hundred years, eighteen cases were discovered in ten branches, yet direct transmission from one generation

to the other is not the rule. Alcohol seems to play the same prominent part as in epilepsy, for in more than half of the patients the fathers were addicted to drink. Marriage between near relatives is rather common in the afflicted families. The influence of puberty, menstruation, pregnancy and lactation has not been studied sufficiently, but the advent of puberty seems to aggravate the disease. Infectious diseases, such as syphilis and tuberculosis, probably play no part. A few complicated and atypical cases are on record, and the differential diagnosis may occasionally present difficulties. Chronic progressive chorea is generally directly inherited, it affects individuals later in life, shows no regular periodicity and the twitchings are slower and more liable to affect groups of muscles. Koschewnikow's epilepsy bears a close resemblance, but paretic weakness of the extremities, contractures and muscular rigidity do not belong to myoclonus epilepsy. Hysteria alone or complicated with epilepsy may be very difficult to distinguish; chorea electrica is an endemic disease affecting individuals later in life; it generally runs an acute course with fever; the twitchings affect only one side of the body and they are accompanied, not preceded, by epileptiform attacks. Paralysis agitans may occasionally simulate atypical forms of the disease. Lastly, Thomsen's disease may run a very parallel course, but the muscular contractions are more tonic and the mind is usually not affected. The pathology is interesting in that there are found the lesions of epilepsy in the second layer cells of the cortex, plus a maximum intensity of the same form of cell-death in the cells of the third layer. Presumably the latter changes underlie the myoclonic spasm. The two diseases have a common soil of degeneracy which is expressed in an organic cellular anomaly of the second and third layers of the cortex. This anomaly manifests itself at the supererogation of an immediate excitant, in epilepsy and myoclonus. This excitant is probably a general toxic or autotoxic agent acting in a uniform manner upon these particular cells. Since the soil for the implantation is so remarkably degenerative, the intoxication may be slight and transient, and therefore doubly difficult to detect. If thyroids and parathyroids are extirpated in animals a condition very similar to myoclonus epilepsy is induced and a thorough study of the parathyroids in connection with the disease is imperative. The treatment is very unsatisfactory, yet the suffering may be considerably allevated. The best care is always in an asylum, since relatives rarely exhibit the necessary patience. Venesection, hypodermoclysis and warm baths often cut short the attacks. The bromides and chloral are as efficient as in epilepsy, but organotherapy has proven a failure, though thymus and parathyroid tablets have not had sufficient trial. Operative removal of parts of the cortex has been tried in one case, but the patient died soon after from wound-infection.

Variations of the Syndrome of Cerebral Tumors.—Duret di Lilla (Gazz. degli osped., Dec. 3, 1903) divides the symptoms of brain tumors into prodromal, complete, attenuated, incomplete or partial, primary or secondary, delayed, or cases with reversed or irregular symptoms. There are cases also where the only manifestation of the tumor is in convulsive or epileptic crises: (*a*) Acute or early cases, complete syndrome, with a progressive course. There are usually cases at the base of the brain, central ganglia, or cerebellum or large tumors. There are exceptions to this rule. (*b*) Syndrome attenuated, incomplete or partial. In these cases only two or three cardinal symptoms of brain tumors are present. (*c*) Syndrome primary, secondary, delayed, or reversed. In these cases symptoms caused by irritation are more marked than by actual presence of a neoplasm. Local symptoms may be absent in cases where autopsy shows a large growth. An entirely different set of symptoms may be caused by the same tumor at different times. (*d*) Syndrome reduced to convulsive symptoms alone. These symptoms may be caused not only by tumors in the motor region, but by tumors of the parietal, basal, cerebral or other regions. They may be caused by very small tumors. (*e*) Syndrome of the nature of vertigo, without other symptoms. (*f*) Syndrome marked chiefly by mental symptoms or pain. The writer concludes that the usual clinical syndrome does not constitute an absolute criterion for diagnosing a cerebral tumor, but is in reality an epiphenomenon.

PEDIATRICS.

Acid Creamless Milk in Gastro-enteritis.—Since 1897 the most strenuous efforts by intestinal lavage, water diet, baths, astringents, etc., have been made by Henri de Rothschild (Le Progrès Medical, Oct. 24, 1903) and his associates to overcome the gastro-enteritis of infants. But in spite of the most devoted care the mortality up to last May was in the neighborhood of fifty per cent. At that time the treatment was changed to milk deprived of cream by centrifuging and acidified by pure cultures of the lactic ferment. From 30 to 60 cc. of this were given at each feeding. The cases treated were those of grave prognosis characterized by very profuse diarrhea, rapid emaciation, bad general condition and high fever. In a remarkably short time the temperature subsided, vomiting ceased, the diarrhea diminished, the stools becoming normal in forty-eight hours in some cases, and the weight of the infant increased. The gain in weight was most noteworthy; other children treated at the same time by the older methods showed a rapid wasting. Out of 14 almost hopeless cases, 13 recovered. The milk was prepared by Tissier and Lanzenberg of the Pasteur Institute.

Starch Digestion in Infancy.—This question has been debated pro and con by numerous authors without any agreement having been reached. A series of practical experiments for the purpose of demonstrating whether infants could really digest starch, were undertaken by H. L. K. Shaw (Albany Med. Annals, Jan., 1904). Thirty-five infants were given barley water on various occasions, instead of their regular feeding. One hundred of such barley meals were removed from fifteen minutes to two hours after the feeding. The stomach was washed out before the feeding in about one-third of the cases. The stomach contents tested with Lugol's solution showed that free starch was present in 2 per cent., erythrodextrin in 41 per cent., and achroodextrin or maltose in 57 per cent. of the tests. In the first two instances the babies were sick, and in the same infants starch conversion was found at other times. In order to determine whether the stomach contents contained any diastatic ferments, the latter were removed after a regular or barley water feeding, and added in varying amounts to a one-half-per-cent. solution of laundry starch. After being in the thermostat for an hour, the addition of Lugol's solution did not show the starch reaction in a single instance. The stomach contents removed two hours after feeding showed diastatic power. Tests to determine the diastatic powers of the saliva also showed that a partial conversion had taken place, and that both free and converted starch were present in the same test tube. It appears, therefore, that the saliva of very young infants contains a diastatic enzyme capable of converting small amounts of starch into maltose; that the diastatic action of the saliva may continue in the stomach as long as two hours after feeding, and that on physiological

grounds there is no reason why young infants cannot digest small amounts of starch.

The Value of Antitoxin as a Prophylactic in Diphtheria.—The following highly interesting statements were made by NETTER, at the recent International Congress of Hygiene at Brussels (Gazz. d. Osp., Nov. 3, 1903): At the request of the Pediatric Society of Paris over 11,300 prophylactic injections of diphtheritic antitoxin were reported, of which some were made in private practice, and many in public institutions. The conclusions drawn are to the effect that these injections confer an almost complete immunity which begins twenty-four hours after the injection had been made, and usually lasts for about one month. Those that get the disease pass through a benign, considerably modified form of it, similar to the varioloid of vaccination. Accidents attending these injections are few and of little importance, usually occurring in adults; abscesses must be accounted for by lack of cleanliness. The usual dose employed as a prophylactic was 500 units. All children of a family where there is a case of diphtheria should receive prophylactic doses of the antitoxin; this measure is of especial importance in cases of public institutions, schools, colleges, etc. Wherever there is a prevalence of diphtheria in institutions it is advisable to subject the children to monthly prophylactic treatment, as outlined above, until the epidemic is thoroughly stamped out. This should also apply to cases of measles, scarlet fever and doubtful infections; the injections here should be stronger and at shorter intervals. Löffler and Netter obtained a unanimous approval of the Congress as regards the above measures.

Treatment of Constipation in Infants.—A simple method of treatment of obstipation in infants is recommended by CLAMMAN (Deut. med. Woch., Vol. 29, No. 44), which he has employed successfully for several years. As the infant lies on his back, a medium-sized Nelaton catheter, thoroughly oiled, is introduced into the rectum. This is then worked backward and forward, and also gently twisted, inducing by this means reflex expulsive action on the part of the intestines.

Pyelitis in Infants.—Attention is called to the possibility of a primary pyelitis in infants which may be readily overlooked, as the urine of babies is rarely examined. M. HARTWIG (Berl. klin. Woch., Nov. 30, 1903) reports three cases in which the clinical picture closely resembled typhoid. The symptoms consisted of a gradually increasing fever which continually returned even after the administration of antipyretics. This could not be accounted for by anything found on repeated physical examinations, until the urine was carefully examined. This was found cloudy and full of bacilli and pus corpuscles. The treatment consisted of various antipyretic measures, and bromide of sodium to guard against eclamptic seizures. Urinary antisepsis was secured by urotropin and turpentine. A cure resulted in from three to four weeks. The author advises that in every case of continued fever in a baby, where all other sources can be eliminated, including typhoid, the urine be carefully examined microscopically. Secondary pyelitis is common enough, but a primary form is rather rare, and should always be borne in mind in doubtful cases.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Pathology of the Parathyroid Gland.—Strangely enough, the parathyroid glands, though apparently of great physiological importance, have been neglected from an anatomical and pathological point of view. H. PETERSEN (Virchow's Archiv, Vol. 174, No. 3) has examined a hundred of these organs and has been able to find them in almost all cases at the middle of the posterior edge of the lateral lobes of the thyroid. Occasionally two organs were present on each side, less often only one on one side or two or three on one side and one on the other. They generally bear a distinct relation to the larger thyroid vessels and their shape varies considerably. In young individuals, the amount of connective tissue is scant and follows the vessels so that the organ may be regarded as a mass of cells divided into lobules by its arteries; but with age the amount of fibrous tissue and fat increases. The vessels enter at a slight depression, which may be regarded as hilus. The greatest importance attaches itself to the parenchyma cells which may be of two types: a large cell with well stained intercellular substance and peripheral nucleus and a smaller one with more indistinct contours and central nucleus. Excretory ducts could not be detected. After the twentieth year, a third type of cell, indicating a degenerative swelling, may occur. Hemorrhages, pigmentation, deposit of colloid, cystic degeneration and fatty infiltration are very common. Elastic fibers occur only in the larger-sized vessels, while the smaller ones seem to distend and tear very readily. As with the thyroid gland, the internal secretion seems to be colloid in nature; it is occasionally stored up and then presses the cells into duct-shaped structures. Any distinct pathological changes standing in relation with the disease of the patient, were not found, but in one case of Addison's disease the colloid deposit was especially large; in one of pernicious anemia there was complete cystic degeneration, and in a case of diabetes a pronounced fatty infiltration was present.

Localization of Hemichorea.—Occasionally an apoplectic stroke is preceded for some time by choreic movements involving the side of the body to be paralyzed, more often this phenomenon is noticed after the paralysis. It stands in close relation with hemiathetosis but has nothing to do with general chorea. D. AUFSCHLAGER (Zeitsch. f. klin. Med., Vol. 51, Nos. 3 and 4) has had occasion to dissect the brain of a patient who died of tuberculous meningitis and who had had choreiform movements in one arm for fifteen years. An old apoplectic cyst was found in the thalamus opticus to account for these. Pressure upon the pyramidal tracts could be ruled out and the long duration of the affection spoke against a purely functional derangement of the motor fibers.

Air Embolism.—The dangers following this affection are explained by L. P. WOLFF (Virchow's Archiv, Vol. 174, No. 3) as follows: The air rapidly enters the right heart where it causes a distinct sound and then passes into the pulmonic circulation, obstructing the smaller vessels. The heart will be able to overcome this enormous resistance only if a small number of capillaries contain air, and if it is not weakened by disease or hemorrhage. Air is only rarely seen in the left heart or systemic circulation; if present, it is due to post-mortem decomposition or to an open foramen ovale. If death does not set in, the air is pressed out of the vessels into the alveoli as the pressure here is least. Occasionally a few bubbles pass into the pulmonic veins and the patient may then die of embolism of the cerebral, spinal or coronary vessels. To avoid air embolism, all gaping of the veins at the root of the neck should be guarded against, and the wound should be constantly kept moist. In operation on the puerperal uterus, the Trendelenburg position must be avoided. As soon as air has entered, it must be pressed through the lungs as rapidly as possible by inducing coughing or vomiting or by giving a saline infusion through the injured vein or else an attempt must be made to force the air backward by rhythmic compression of the thorax with alternate opening and closing of the vein.

The inhalation of oxygen is also serviceable. Puncture of the right heart is an extreme measure, which will rarely do good.

Cause of Human Actinomycosis.—A distinct difference in growth is obtained if actinomycotic pus is transplanted on culture media instead of the characteristic granules; in the former case the colonies will be larger and the gelatine will be liquefied more rapidly than in the latter. As observed by K. Döpke (Münch. med. Woch., Dec. 22, 1903) the oval bodies contained in the granules will first elongate and divide. This division may repeat itself several times after which elongation takes place to be followed by segmentation into a number of short rods. The behavior toward Gram's stain is peculiar: the granules stain well, but lose this property soon after division, until they develop into rods when they again retain the dye. The club-shaped structures, which are so frequently described as characteristic, are probably not signs of degeneration, since they frequently develop and disappear rapidly in the same culture. It is more likely that they constitute spore-containing receptacles, as granules develop from them very rapidly, even under unfavorable conditions. It is much easier to find club-shaped structures in the pus from animals than from man, and the two forms of actinomyces are probably not exactly identical, unless the variations are due to the different culture-media. The tendency to calcify manifests itself also on artificial media in the form of mulberry-shaped, very hard granules, which settle to the bottom of the tube. The best medium is invariably glycerin-agar at body temperature, with or without oxygen; the cultures here are raised, amber-colored with darker and depressed center from which radiations extend to the periphery. The method of infection in man is not as clear as in animals, but since the germ has been found in the contents of carious teeth it is possible that it can be transmitted by dental instruments.

Pathology of Pertussis.—Based upon a large number of autopsies, G. Arnheim (Virchow's Archiv, Vol. 174, No. 3) looks upon whooping-cough as an infectious condition of the respiratory passages, especially the trachea, manifesting itself chiefly as a desquamative catarrh. The characteristic bacteria are easily detected in large masses in the mucus and the mucous membrane, and where the lungs are involved they also occur in the bronchopneumonic foci. The characteristic attacks are induced by the presence of the bacteria in especially sensitive portions of the larynx and trachea. They are to be looked upon as attempts to rid the system of the germs. During the course of the disease the secretion becomes more viscous, owing to the influence of pyogenic germs which also set up an increased chemotaxis of leucocytes. After the disease is over, the mucous membrane returns to its normal condition.

Organization of Blood Effusions.—A case of extensive cerebral hemorrhage of some age, observed by R. Milner (Virchow's Archiv, Vol. 174, No. 3) offered valuable material for the study of the alterations which the effused blood undergoes. The cause of the chemical changes is to be found in the surrounding tissue; its influence manifests itself slowly in the thrombus but more rapidly in the cells. The hemoglobin is first converted into hematoidin and a hemosiderin which gives no iron reaction; this may occur in the red cells or after these are disintegrated. Both principles occur in solution from which they slowly precipitate, the first as distinct crystals, the second in the form of granules with sharp edges. The disintegrating leucocytes play an active part in bringing about this precipitation, but for the hematoidin the fibrin also has some influence, and for the hemosiderin the stroma of the red cells. The remainder of both solutions saturates the strands of fibrin where part of the hemosiderin is converted into another variety of this substance containing, however, iron. The leucocytes from without have little influence upon the modification of the pigment, but the epithelioid cells are very potent, no matter whether the pigment is dissolved or not. Fixed cells of the dura, which have absorbed coloring matter, demonstrate the same changes. The hematoidin is rapidly dissolved out of the cells and carried into the blood-stream but the second form of hemosiderin is more permanent.

Glycogen Reaction of Leucocytes.—The blood examination in a large number of cases has convinced J. Sorovowitsch (Zeitsch. f. klin. Med., Vol. 51, Nos. 3 and 4) that the presence of the glycogen reaction in the leucocytes is not an absolute proof of suppuration, though it makes the existence of an abscess somewhere in the body probable, if other clinical symptoms are present, provided the patient is not suffering from pneumonia. A positive iodine reaction was also found with coprostasis, on account of the intestinal intoxication accompanying this, with small circumscribed carcinomata and in other intoxications with local pains. In blood diseases the test is of no importance but it will often aid in distinguishing between rheumatic and gonorrheal arthritis, since always negative in the former and positive in the latter. A positive reaction is also common in myxedema and Addison's disease, which points to the imperfect neutralization of some toxin in the circulation. Glycogen was detected more frequently in the cells of exudates and pus than in the blood, even if the irritant was non-bacterial and it seems likely that the protoplasm of the leucocytes undergoes a distinct change as soon as they leave the vessels. The reaction can be artificially created by injecting all kinds of toxins and irritants into the blood of animals. The phenomenon is probably a form of degeneration; every living cell is able to convert proteid into glycogen and this into glucose by means of a special ferment. When an irritant is present, the ferment is paralyzed or destroyed, so that the glycogen remains stored up in the cells and is lost to the animal economy. There are many different ways of demonstrating iodophile leucocytes; in the simplest one thin cover-slips are prepared and then immersed for three minutes into iodized gum containing one gram of iodine, three of iodide of potash and 60 of gum arabic to one hundred of water. Canada balsam must be avoided.

The Morphology and Chemistry of Fatty Degeneration.—That fatty degeneration is due to an infiltration of previously injured cells is the claim made by H. Ribbert (Deut. med. Woch., Vol. 29, No. 44). He believes, from the results of his observations, that the fat enters into normal cells and accumulates as deposits of fat, forming the adipose tissue, whereas when it enters into pathological cells it produces fatty degeneration. The two processes may thus be regarded as a physiological and a pathological fatty infiltration.

Development of the Islands of Langerhans.—A careful study of this development has been carried out on the pancreas of 21 human embryos by R. M. Pearce (Univ. Penn. Med. Bull., Nov., 1903). He finds the differentiated cells, characterized by a rich, finely granular, eosinophilic protoplasm, lie as small round or oval masses in direct continuity with the cells of the tubule. Later the attached portion becomes constricted, and, lengthening, forms a stalk-like, solid process of cells connecting the island with the acinus. At this period a few entirely isolated islands are present. A separation takes place and is apparently brought about by the pressure of the investing connective tissue. Vascularization has now occurred. Later on the cells be-

come arranged in columns and a fine reticulum is observed. The rapidly forming glandular structures finally surround the islands, which then occupy the centers of the lobules. In syphilitic pancreatitis of the newborn, a condition in which the normal development of the pancreas is arrested by a rapid proliferation of connective tissue, confirmatory evidence of this mode of development is supplied by the presence of solid processes of cells connecting the islands and acini. The demonstration of the differentiation and final independence of the islands of Langerhans, as here given, offers an anatomical basis for the theory, so strongly supported by pathological and experimental observations, that the islands have a physiology independent of the glandular portion of the pancreas.

Differentiation Between Typhoid and Other Intestinal Germs.—O. LENTZ and J. TIETZ (Münch. med. Woch., Dec. 8, 1903) recommend the following bacteriological method for suspicious stools: The feces are mixed with double the amount of physiological salt solution, until a homogeneous mass results; 0.1 to 0.2 c.cm. are then distributed evenly upon a dish of agar, containing malachite green in the amount of 1-6,000. Colon bacilli do not grow upon this medium but typhoid bacilli and certain alkali-producing bacteria readily develop to colonies resembling dewdrops. The spatula used for spreading the germs is also passed over the surface of two litmus-lactose-agar plates which are examined after twenty hours. If no typhoid colonies are then found upon these, four or five suspicious colonies of the green plates are tested with highly agglutinating serum. Should this also give negative results, the entire surface of the green plate is washed off by means of 2 c.cm. of broth and a loopful then distributed over another blue plate. After sixteen to twenty hours, typhoid germs can then be readily detected, even if the stool contained only few. The green agar also forms an ideal culture medium for the paratyphoid germ.

An Effort to Produce an Antibody from the Blood Serum of Cancer Patients.—The following experiments were made by C. S. ENGEL (Deut. med. Woch., Vol. 29, No. 48) for the purpose of producing antibodies without anti-alexins. Ten to fifteen cubic centimeters of blood were drawn twice a week from each of two subjects afflicted with inoperable cancer of the stomach, and the resulting serum was injected into rabbits. The serum was heated to 58° C. before injection, in order to eliminate the alexins. The serum from the rabbits thus treated was injected into the cancer subjects together with a further supply of alexins in the form of normal serum from healthy subjects. Tests of the serum in vitro indicated that antibodies had been generated in only one of the rabbits; in that from the other animals they were negative. The author claims that one of the patients showed considerable improvement after this serum treatment and was able to swallow solid food. The disease continued its course, however, and the patient died in four months. The other patient died in about two months without having showed any signs of improvement. The author believes that serumtherapy based on injections of cancer tissue is more promising than that based on injections of serum. Other experiments also indicate that the prospects are much better for the production of an effective animal serum by injection of human blood serum from subjects with constitutional disease other than cancer.

GENITO-URINARY AND SKIN DISEASES.

Preventive Treatment of Syphilis.—Whether it is possible to abort syphilitic infection after the initial lesion has appeared is considered by many to be still an unsolved problem, for it is yet an undecided question whether the chancre is a strictly local lesion or whether the general infection has already taken place when this appears. E. HOLLÄNDER (Berl. klin. Woch., Nov. 16, 1903) has recently published his observations on a series of 59 cases which he has treated and kept under continual surveillance. He brought about the destruction of the chancre by means of the Pacquelin cautery, never bringing the glowing point in actual contact with the lesion. He claims that by this means heat rays penetrate much more readily and diffusely into the tissues than when the cautery point itself enters the skin. In the latter case, the instrument merely cuts and the effect is mechanical rather than thermic. Of the 59 cases operated upon, later syphilitic lesions developed in 12, while some of a more doubtful nature appeared in 3 others. The remaining cases were free from further symptoms for varying periods of from 2½ years to six months. Five of these patients married, and in no case was the wife infected—some even bore healthy children. It was also found that in a number of instances where swelling of the adjoining lymph-nodes was present, the latter subsided. Another point which the author determined was the difference in the behavior during cauterization of the specific and non-specific lesions. If, after cauterization of an ulcer, without bringing the glowing into actual contact with the sore, the base of the latter be scraped with a sharp spoon, not a bit of tissue can be scraped away if the lesion has been a syphilitic one, and no bleeding results. In the case of a non-specific ulcer, however, the entire base of the ulcer can be readily scraped away and bleeding follows—no actual induration is present. The latter also heals up very quickly, while cicatrization in the chancre may take several weeks. In those cases where further specific lesions developed, the entire course of the disease was found to be much less severe than in ordinary cases and the author believes that destruction of the primary sore has a marked beneficial influence. The proof of a definite healing also seems evident by the fact that in a few cases the patients again became infected with a hard chancre.

Treatment of Skin Diseases by Light Rays.—A series of 111 cases of various skin diseases which have been treated by the Finsen or the Roentgen rays is reported by J. F. SCHAMBERG (Am. Med., Dec. 19, 1903). The former was used in 15 cases, and he believes that it is the best-known treatment for lupus vulgaris. In the erythematous form he has seen some improvement, but no cures. When the lupus nodules are ulcerated he finds that the Roentgen rays should be given preference over the Finsen rays, when the mucous membranes are affected, and also in hypertrophic and vegetative forms of the disease. He comes to the same conclusions as other observers as to the limitations of the X-ray in cancer of the skin. The X-rays were also found extremely valuable in acne and brilliant results were obtained even in long-standing cases. In eczema the X-rays were found to relieve the itching and in effecting a disappearance of the eruption. In psoriasis the effect was only temporary and relapses are not less common than under other methods of treatment. Benefit was also found in addition in other dermatoses, sycosis, lichen planus, ringworm and favus, tuberculosis of the skin, blastomycetis and others. He believes that the liability to the production of a burn, with ordinary measures, is extremely slight.

Inoculation of Anthropoid Apes with Syphilis.—Attempts to confirm the experiments of Metschnikoff and Roux in this field have been made by O. LASSER (Berl. klin. Woch., Dec. 28, 1903). He inoculated a male chimpanzee with virus from a man who presented the initial lesion of syphilis on his arm. Multiple inoculations were made on the lips and the forehead which

healed promptly within forty-eight hours. In two of the localities—above the eyebrows—lesions appeared in two weeks, which, in their form, color, indurated edges and central ulceration, strongly suggested the primary syphilitic sore as found in man. Within a few weeks a characteristic papillary eruption also appeared in the palms and soles, around the anus and on the forehead, from which the hair also began to fall out. The cervical lymph-nodes then became enlarged. The author does not claim that the evidence is positive that the disease may be transmitted from man to the ape, and that in this case the picture is that of an abortive or weakened form of syphilis, gauged by the standards adopted for man. It is hardly to be expected that the virulence of the disease may be sufficiently increased to permit its transmission from one animal to another. The rarity of the material and the prevalence of tuberculosis among apes in captivity are unfortunately marked hindrances to extended experiments. Sections made from the initial lesions show an endo- and peri-arteritis of the superficial vessels, with a thickening of the walls and infiltration of the adventitia, similar to that in the initial sclerosis seen in man. The article is illustrated with some very interesting photographs.

Asepsis in Catheterization.—An ideal lubricant for catheters and sounds, recommended by L. Casper (Deut. med. Woch., Vol. 29, No. 46) consists of a mixture of glycerin, water and tragacanth, together with mercury oxycyanate 1 in 500. This does not irritate the urethra, renders the instruments very smooth and slippery, is readily soluble in water and dissolves as soon as the instrument is inserted into the bladder, without obscuring the view through the cystoscope. In place of boric acid for washing out the bladder he prefers mercury oxycyanate, 1 in 5,000. This is non-irritating, does not injure the instruments, and although not a strong antiseptic, is yet sufficient to inhibit the growth of microbes. His method of sterilizing catheters and cystoscopes is as follows: The parts are rubbed with three gauze sponges dipped in tincture of green soap, using each one for a minute. The instrument is then wrapped in a compress impregnated with the same material and kept in this until needed. Whatever parts can be removed are boiled for five minutes.

Prevention of Iodism.—This is the effect of the iodized alkalies suddenly flooding the organism and pouring out through the mucous membranes. F. Lesser (Deut. med. Woch., Vol. 29, No. 46) believes that this afflux of alkali is what causes the catarrhal condition in the mucous membranes and leads to iodine intoxication. He suggests as a prophylactic measure that the iodine salts be administered in a mucilaginous vehicle in order to render absorption more slow and gradual. In some cases it may be advisable to give the iodine per rectum where absorption is also slower. Another prophylactic measure is to use the iodine in the form of iodized fats or the injection of iodipin. In cases of pronounced idiosyncrasy, the latter may be used at first in small injections in order to accustom the organism gradually, and then the internal administration may be gradually substituted.

EYE, EAR, NOSE AND THROAT.

Etiology of the Hyperplasia of the Pharyngeal Tonsil.—From a consideration of the most recent views advanced, the following conclusions as to the origin of this condition are proposed by T. J. Harris (Am. Med., Jan 2, 1904): The first claim is that the pharyngeal tonsil possesses a distinct function. This function is of the nature of a defense against the entrance of bacteria and consists in a certain irrigation of the tonsil surface by a lymph stream loaded with lymphocytes. This protection function carries with it the inherent qualities of the tonsil to enlarge on the slightest irritation for the affording of further powers of defense. This inherent tendency of the tonsil to enlarge is further seen in the frequent recurrence of the tonsil after removal. Strictly speaking, he claims that such enlargements are not a pathological, but a physiological process.

Subconjunctival Injections in Ophthalmic Therapeutics.—C. S. Bull (Trans. Am. Ophth. Soc., 1903) reviews the extensive literature of this subject, and arrives at the following conclusions from his own experience: That the efficiency of the various solutions injected beneath the conjunctiva—sodium chloride, sublimati, mercuric oxycyanide and hetol, all of varying strengths, cannot be ascribed to the increased local acceleration of the lymph currents, nor to the antiseptic action of the remedies employed, since the presence of such processes cannot be demonstrated in the tissues of the eye following the injections. The chief change seems to be in the composition of the aqueous humor, which is said to become richer in albuminoids, in combination with which there may be an appearance of certain protective substances, as is believed to be the case in the blood. Sodium chloride and mercuric oxycyanide solutions were of little value in keratitis, uveitis, detachment of the retina and panophthalmitis. Hetol or sodium cinnamate in a 1-per-cent. aqueous solution seemed to be of benefit in acute inflammations of the uvea, in hastening the process of absorption, it was apparently of no use in chronic cases, notably in scleritis, nor in two cases of tuberculous disease of the iris and choroid. In several cases of orbital cellulitis of an infectious character, however, subconjunctival injections of a sublimate solution (1-1,000) did exert a very favorable and unusually rapid effect in hastening the suppurative stage, in reducing the dense infiltration of the orbital cellular tissue, and thus aiding in restoring the circulation to the strangulated parts.

Possible Etiological Factor in Tobacco-alcohol Amblyopia.—G. E. de Schweinitz and Edsall (Trans. Am. Ophth. Soc., 1903) attempt to throw some light on what the possible poison may be which produces one or the other of the many changes which have been described by many authors in the optic nerve fibers, or the ganglion cells of the retina, and which manifest themselves by the clinical symptoms. Horner long ago, and de Schweinitz in 1900, suggested that the disease depended on a species of auto-intoxication, and the investigations of Sachs and Casey Wood indicate "that certain stomachic toxins are capable of causing in animals blindness, probably of the type now under consideration." The details and results of seven cases do not lend themselves to an abstract. Suffice it to say "there were evidences of a marked disturbance of digestion or of metabolism, or of both." The authors continue: "This view is entirely in consonance with the results of investigations concerning the manner in which other toxic effects of alcoholism are produced, and it also accords with our knowledge of the effects of some other chronic poisonings. Enlargement was easily recognizable in three of these cases, also some tenderness of the liver, and all had marked urobilinuria in addition to the evident disturbance of the alimentary tract. In certain cases the improvement in vision corresponded to the disappearance of the morbid condition of digestion.

Tobacco Nerve Deafness.—Wyatt Wingrave (Ann of Otol., Rhinol. and Laryngol., Sept., 1903) gives the results of his observations of 17 cases as follows: (1) That they were all well-marked cases of nerve deafness (unattributable to other causes) occurring in heavy smokers; (2) that the loss of low tones in 50 per cent. suggests an auditory equivalent for a recognizable ocular lesion; (3) that the disease was symmetrical; (4) that

there was impairment of color sense in 8 of them, and definite scotoma in 4 cases; (5) that 80 per cent. showed marked improvement on abstinence from tobacco, supplemented by drug treatment; three were cured.

Ocular Complications of Scurvy.—The external diseases of the eye following scurvy, such as hemorrhage beneath the conjunctiva and keratitis, have been more frequently described than the affections of the deeper parts. This is probably because epidemics of scurvy were more frequent during the pre-ophthalmoscopic days when deeper lesions of the eye were not recognized. WEILL (Zeitsch. f. Augenheilk., May, 1903) examined the eyes of 61 prisoners with scurvy, and found that three had marked optic neuritis and two retinitis. Except for one case of neuritis in a man of sixty years, which passed into atrophy, all recovered with normal vision under treatment directed to their general condition. It is striking that in none of these 61 cases was there any external ocular sign of the disease, while in another epidemic FIALKOWSKY (Centralbl. f. prakt. Augenheilk., 1880) found only hemorrhages of the lids and conjunctiva and keratitis.

Antitoxine Treatment of Hay Fever.—For several years Prof. Dunbar, of Hamburg, has been experimenting with a proteid substance which he has isolated from the pollin of rye, wheat, and other gramineous plants, and which, when applied to the nasal mucous membrane of a person subject to hay fever, causes all the symptoms of that disease. To secure an antitoxin he injected this substance into animals and after large doses had been thus injected he found that the blood from these animals exerted a marked effect in allaying all the symptoms of hay fever. Good results were obtained early this summer by Dr. Emil Mayer in several cases when treated by this antitoxin, and A. W. MACCOY (N. Y. Med. Jour., Nov. 21, 1903) now reports the results which he obtained upon 15 cases belonging to the late summer type of hay fever. He says that the effect was so promptly manifested, the relief so complete, and the result so permanent for this season, that it appears really marvelous. Thus far it has not been demonstrated whether there are several kinds of toxins causing these disturbances, but it is probable that there are, and that more than one kind of antitoxin will be required to cure all cases of hay fever.

Eumydrin, a New Mydriatic.—This lately devised product has been subjected to practical clinical tests by LINDENMEYER (Berl. klin. Woch., Nov. 23, 1903). This preparation is made from atropine, the chemical composition of the latter being changed to such an extent that its action on the central nervous system is entirely done away with, while the effect on the peripheral nerves remains. The toxicity of the new drug is claimed to be fifty times less than that of atropine itself, and in no case were any unpleasant after-effects observed. Solutions of various strengths were employed, from 1 to 10 per cent. The author believes that the drug is a valuable addition to the materia medica, producing mydriasis and paralysis of accommodation in a shorter time than is possible with atropine, although the paralysis is of somewhat shorter duration. It was also found to be efficacious in weak solutions to combat irritation produced by foreign bodies, phlyctenulæ, etc. With the strong solutions it was possible to break up fresh synechia after two or three applications. Another point demonstrated was that in those cases where on account of some idiosyncrasy on the part of the patient it was necessary to interrupt the continuous employment of atropine, eumydrin proved a very efficient substitute.

Shortsightedness in School Children.—In concluding his very instructive article on the examination of 200 school text-books from a sanitary point of view, A. RAMMUL (Russ. med. Rundschau, No. 14, 1903) draws particular attention to the fact, as substantiated by many prominent investigators, that shortsightedness in children either originates or develops in school. The chief causative agency therefore is to be found in too prolonged reading, writing and drawing, whereby accommodation as well as convergence are greatly fatigued. Undue strain of the muscles of accommodation causes an active hyperemia, the return flow of the venous circulation is greatly hindered, there is an increase of the intra-ocular pressure and the sclerotic is gradually stretched. Too strong convergence works even greater harm for the eye in various ways. It must also be observed that in some of the children shortsightedness is hereditary and they become affected so much sooner than their healthy comrades. In addition to the above cause producing shortsightedness, mention must be made of poor or insufficient lights with which many school buildings are supplied; the same may be said of unhygienic school furniture. As regards the influence of books on the eyesight the author insists that paper should not be polished, for under artificial light a polish on a paper prevents the eye from seeing well and necessitates moving the book to and fro, as well as frequent changes in the position of the head. Again, the paper should be thick enough to prevent the printing of the next page from intruding itself upon the reader's eye. Although a few authors recommend yellow paper, the majority speak in favor of white, for the contrast between the print and the paper is so much more striking the whiter the paper.

Rupture of the Sclerotic in a Staphylomatous Eye.—Ruptures of the sclerotic are comparatively rare, and are but seldom mentioned in ophthalmological literature. In the case described by L. M. FRANKEL (Prak. Vrach, Oct. 11, 1903) there appeared post-traumatically a severe hemorrhage from the left eye, which was soon controlled by the author by pressure on the eyeball. Examination revealed a complete staphyloma of the cornea, at the external canthus superiorly there was a rupture of the sclerotic of 8 to 9 mm. long with smooth even edges. The patient has had the staphyloma for over fifteen years. He was advised to undergo the operation of evisceration of the eyeball, but he consented only on the fourth day after the occurrence of the trauma. The operation was performed under chloroform after Arlt's method, the only difficulty encountered was in the fact that the eyeball was soft and contracted. The postoperative course was uneventful, and on the twelfth day patient left hospital, and was able, six weeks later, to return to his occupation, that of a packer.

THERAPEUTICS.

Calomel in Pneumonia.—The use of calomel in pneumonia has been reported and recommended favorably for some time past by C. BERTAZZOLI (Gazz. d. Osp., Nov. 15, 1903), and his present investigation is based on an experience with six cases. He does not consider the drug as specific, but is quite certain as to its beneficial effect in this disease. The remedy should be administered in generous doses and should be accompanied by such other drugs as provoke energetic peristalsis, so as to procure its complete elimination from the organism. Thus a double advantage is gained: The calomel is permitted to exert its good effect, and is at the same time not allowed to be absorbed by the system. The author prefers to administer it together with scammony, because they are both compatible, and also because of the latter's action on the intestines. The effect of calomel is principally that of an antipyretic, and at the same time it seems to cut short the further spread of the inflammatory process. The author describes its action as that of an intestinal derivative, and as he is convinced that the intense headache of pneumonia is

largely due to cerebral congestion provoked by the obstruction of the lesser circulation, as conditioned by the state of the lungs, calomel depletes the congested area by driving the blood to another portion of the body. With the headache there disappears rapidly the delirium, and the temperature falls and stays lower than it was before the administration of the drug. In calomel we possess one of the most energetic drugs in our armamentarium: It is an efficient diuretic, exerts an undoubted effect on the vasomotor system, is an active purgative, and a reliable disinfectant.

Infantile Eczema.—The following is applied morning and evening by Comby (Le Progrès Médical, Nov. 28, 1903):

℞ Acidi salicylici ..... 3.0 (gr. xlv.)
Zinci oxidi ..... 3.0 (gr. xlv)
Adipis lanæ hydrosi .....10.0 (℥ iiss.)
Petrolati .....20.0 (℥v.)

In addition he powders the regions with

℞ Acidi salicylici ..... 1.0 (gr. xv.)
Amyli
Talc
Lycopodii .....aa 20.0 (℥ v.)

Treatment of Epilepsy.—M. Laufenauer (La Méd. Moderne, Oct. 21, 1903) recommends the double bromide of rubidium and ammonium in the treatment of epilepsy; he has seen decidedly better results with this salt than with other bromides. The action is in the main the same, since the rubidium does not exercise any specific effect. The daily dose is four to seven grams; four to five grams given at night is an excellent hypnotic.

New Nutrient Enema.—This nutrient enema is recommended by A. Schmidt (Münch. med. Woch., Nov. 24, 1903), and is of the following composition: Dextrin, 50 gme. (2⅔ ozs.); Nährstoff Heyden, 20 gme. (⅔ oz.); solution sodium chloride 0.09 per cent., 250 c.c. (8 oz.). This is filled into sterilized glass tubes which need only be placed in warm water before use. Each enema corresponds to 287 colories. If the rectum is washed out several hours after an enema is given, only traces of its ingredients can be detected chemically, since absorption is almost perfect without irritation of the rectum.

Modification of the Toxicity of Poisons by the Addition of Non-poisonous Substances.—E. Lesné and C. Richet (Arch. Internat. de Pharmacodyn., Vol. XII, fasc. III and IV) find that by adding chloride of sodium to certain poisons, such as iodide of potassium, chloride of ammonia and cocaine, given orally or by intravenous injection, their poisonous properties are considerably reduced. Urea and the sugars act similarly, but not to the same degree. In mice, salt also diminishes the toxicity of strychnine, if it is injected half an hour before the alkaloid. The toxicity of urine is also lessened, but that of its alcoholic extract increased. It is probable that the animal cells, when saturated with chloride of sodium, are unable to take up as much poisonous substance as normally. The infrequency of uremia in patients with marked edema finds a ready explanation since it has been shown that retention of chlorides in the system is the cause of the edema, for the cells, already saturated with salt, do not so readily fix the urinary poisons.

Poisoning with Nitrites.—In poisoning warm-blooded animals with nitrites some will develop anesthesia, narcosis, somnolency and apathy, while others will die in most severe convulsions. E. Harnack (Arch. Internat. de Pharmacodyn., Vol. XII, fasc. 3 and 4) believes the latter symptom is not due to the nitrite itself, but to ammonia, which is always formed if larger doses of nitrite are given. The specific action of nitrites is due to a rapid and almost complete reduction in the system, manifesting itself by the appearance of methemoglobin and by the absence of nitrites in blood and urine soon after ingestion. In small amounts the cause of death is the withdrawal of oxygen alone; in larger doses, the reduction products, among which ammonia is the most important, are fatal also. There are few organic substances which are so intensely toxic as the nitrites, since death may follow in fifteen minutes.

Tobacco Smoking.—Besides nicotine, tobacco smoke contains nicotianine, collidine and other pyridine derivatives, acids, resins, carbon dioxide, prussic acid and ammoniacal salts. Two drops of nicotine placed on a dog's tongue produce in succession efforts to swallow, great weakness, convulsions, and death, in less than a minute. Eight drops will kill a horse. Tobacco contains from two to eight per cent. of nicotine, and Le Bon has determined that though most of this is changed in smoking, it appears as other pyridine bodies which are just as poisonous. Petit (Le Progrès Médicale, Nov. 28, 1903) finds that these bodies do not condense much in the warm mouth, so are mostly exhaled, therefore the physiological effect of ordinary smoking is not a marked one. Susceptible persons may, however, be much affected by breathing the air of a room in which there is much tobacco-smoke. The action of nicotine, as is well known, lies between that of the bromides and digitalis. It soothes the nervous system, but causes a powerful and rapid contraction of the vessels, and a rise in blood-pressure. Among its dangers, therefore, one of the best known is angina pectoris, perhaps due to spasm of the coronary arteries. Through prolonged use it promotes the development of arteriosclerosis. It is a habit-drug like opium, cocaine and alcohol, and its devotee loses the force of will necessary to stop the habit, though he knows it is harming him. The smoking acts also in depriving the smoker of oxygen, for the burning tobacco develops carbon dioxide and the red blood corpuscles do not form their full amount of oxyhemoglobin. In small doses the respiration is accelerated, in large dose depressed. There is apparently no bactericidal action on any microorganisms in the lungs. One of the first effects of an overdose is nausea, and prolonged smoking is a distinct factor in the production of digestive troubles.

Quantitative Determination of Pepsin.—Compared with the accurate methods we possess to determine the amount of acid in the gastric juice, the estimation of pepsin, though almost equally important, is more difficult, as hitherto impossible by volumetric means. F. Volhard (Münch. med. Woch., Dec. 8, 1903) finds that pure casein is readily precipitated by means of sodium sulphate, but if digested with pepsin, the amount of precipitate will gradually become less. The filtrate will turn more acid as the casein is peptonized and titration will give a ready index of the amount of pepsin present. One hundred cubic centimeters of a solution containing 100 grams of casein in 1,760 c.cm. of water and 140 c.cm. of normal hydrochloric acid, are diluted with gastric juice and water up to 300 c.cm., and kept at 40° C. The casein is then precipitated with 100 c.cm. of 20-per-cent. solution of sodium sulphate and finally the acidity is determined in 200 c.cm. of filtrate. The amount of juice used and the time of digestion form the figures for a mathematical formula which admits of ready calculation.

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SATURDAY, JANUARY 30, 1904.

THE POSSIBILITIES OF GASTRIC SURGERY.

THERE is an untrodden tundra in which diagnosticians must wander for many years before some satisfactory position in the rational care of gastric diseases is reached.

Dr. John B. Murphy, in the *Annals of Surgery* for December, writes that at the present time the surgical diseases of the stomach which are brought to the surgeon's notice, may be classified as follows: (1) Gastric carcinoma, (2) gastric ulcer, (3) pyloric obstruction, (4) pyloric retention, and (5) gastro-duodenal or pyloro-duodenal lesions. "If surgery," he says, "is to accomplish for the stomach all that it is capable of, the frequency with which the surgeon deals with the stomach must be for lesions in substantially the reverse order. If the first three of this reversed classification be early and properly treated from a surgical standpoint, the surgeon will be consulted very much less frequently for carcinoma of the stomach. Thirty-five per cent. to 45 per cent. of all carcinomata occur in the stomach; from one to three and a half per cent. of all deaths are caused by this disease."

Dr. W. J. Mayo, of Rochester, Minn., has shown a mortality of only 15.5 per cent. in 109 cases of carcinoma of the stomach. This, from a purely technical standpoint, is a remarkable record and shows to what a degree of perfection the art of mere removal of the growth has been brought. The final results, however, even in these cases, are profoundly discouraging. Even to the most hopeful they show that surgery, under the present limitations, has reached the bourne beyond which it cannot hope to pass. Improvement in final mortality rates must come either from a protection of the individual from cancer-producing conditions, or from pronounced improvement in our ability to diagnose the early stages of the disease.

Dr. Murphy in his characteristically urgent and appealing style, forces the blunt, but as yet imperfectly recognized truth that there is a distinct cancerous symptom complex, which in a post-mortem review of the case can almost invariably be traced. This complex is not, in his own words, "manifested as a thunderbolt from a clear sky," but is characterized by a special train of gastric symptoms that have existed in many cases for years. Irritations and retentions in the stomach play the same rôle in the production of carcinomata here as the pipe on the lip, the gall-stone in the bladder, the feces in the colon. What are the symptoms, he asks, which manifest themselves after the penetration of the basement membrane by these erratic epithelial cells? Do we, in other words, recognize the transition from precancerous conditions to cancerous?

Based on the reports from Mayo Robson's clinic, at which 101 cases of posterior gastro-enterostomy were done with but 3.9 per cent. mortality, and 20 cases of pyloroplasty without a single death, it is extremely conservative to say that exploratory operations on the stomach are practically danger free. If 100 cases showing symptoms of very slight pyloric retention could be operated upon, an exploratory laparotomy for diagnostic purposes could be done, a large longitudinal gastrotomy with subsequent inspection of the gastric mucosa would be possible with a likelihood of death in but perhaps a single case. If the hundred cases so treated were on the other hand left either to themselves, the ultimate mortality would be many times greater. Mayo Robson concludes that an exploratory operation must be performed early in order to permit of a sufficiently radical operation being done to make such treatment worthy of execution.

Von Milkulicz has estimated that four or five per cent. of the race suffer from gastric ulcer and one-fifth die as the result of these gastric ulcerations. Carcinoma may then be considered as proved in many cases, to be due to a subacute

irritation of normal or cicatricial epithelial surfaces. Retention is undoubtedly a very important etiological factor in causing irritation, not alone by the mechanical stimulus of the retained food particles, but by the chemical etching of the part, by the acids of decomposition.

With such men as Mayo, Mikulicz, Murphy, Czerny, Mayo Robson and Moynihan, urging the profession to make use of exploratory laparotomy in doubtful cases of gastric disease, is it not time that more general heed be given to their counsels? They have demonstrated we believe without the possibility of error their ability to consummate with almost no mortality the most profoundly difficult gastric operations. Five per cent. of all people have gastric ulcers. A large but unknown number of these cases develop carcinoma. Welch states that 3.5 per cent. of all deaths are caused by this disease. Can any impartial judge hear the testimony of these men and yet decide that the course at present adhered to by the majority of the profession is not at variance with the best interests of the community?

TYPHOID FEVER.

The *Practitioner* for January is devoted entirely to a consideration of typhoid fever. From remote quarters of the globe, as well as from England and America, over a dozen eminent physicians have united in discussing the occurrence, treatment and prophylaxis of what has well been termed the "ubiquitous" disease. All join in emphasizing the need and value of advanced sanitary precautions as the only means by which the disease may be held in check.

From the Far East we learn that, contrary to the former belief, typhoid fever is a common disease in India; natives and newly arrived Europeans frequently are sufferers. The natives of Egypt seem to enjoy immunity. Typhoid prevails in China chiefly among foreigners who import the disease into the country. The Chinese, unlike the Egyptians, are plainly susceptible to typhoid, but they seem to be protected by their habit of avoiding milk and the use of unboiled water for drinking and culinary purposes.

The typhoid fever which occurred among the British troops in the South African war is believed to have been due largely to impure water supplies, absence of sewerage systems, camp infection, flies, dust, and the want of such sanitary protection as is commonly afforded in cities. It is likely that all great wars will be notorious for typhoid fever, unless a complete sanitary administration can be formed to deal more adequately with the enteric fever problem than has been seen in the field in the past. A hopeful outlook toward better results is afforded by the fact that the sanitation of British camps is in the future to be entrusted to a newly created Sanitary Officer of the Royal Army Medical Corps.

Although municipal sanitation has well-nigh banished typhoid fever from some cities, it is significant to note that it does occur sporadically even in London. The small number of cases there is ascribed less to the water and milk supplies than to infected oysters and other shellfish and to what is termed "contact." By contact is meant the transmission from person to person in households, through carelessness in handling infected articles and destroying the germs of the disease. There seems little doubt but that typhoid fever spreads to a far greater extent in households than is commonly believed, a large number of instances of such transmission being available.

If typhoid is to be suppressed, it is essential that all avenues of transmission be recognized and rigidly closed. This means that established scientific facts must be acknowledged, whether they seem to agree with a former belief in the etiology of the disease or not. While no epidemic disease can be more easily controlled and prevented than typhoid, few are capable of creating greater ravages in houses, streets, hospitals, camps and cities.

Something has been done to afford individual protection from typhoid fever by the use of antityphoid inoculation, or, as it may properly be termed, vaccination. The results which have been accomplished in the South African war with antityphoid inoculation appear to have been excellent. The immediate effects of vaccination are extremely unpleasant, but for soldiers and others who expect to be especially exposed to infection, the uncomfortable consequences which temporarily follow vaccination should be more than offset by the permanent benefits afforded.

The present tendency in the treatment of typhoid is toward greater attention to the individual case, and the substitution of simple methods of diet for drugs. The watchword in the typhoid wards of Johns Hopkins Hospital is "More water." It is usual at this institution to urge upon patients about as much cold water as they can be prevailed upon to consume. The immersion bath is standard treatment; it is customary in Osler's wards to tub the patient every three

hours when the temperature is 102.5° F. or over, but more than seven baths per twenty-four hours are never given. The first bath should be 85° F. and each succeeding one 5° F. lower until the most suitable point is reached. Patients are never permitted to walk to the tubs.

Complications in typhoid fever, and correct methods of nursing and surgical treatment, are becoming more and more generally understood and practised. Rigors, apart from any recognizable complication, while alarming, need not be considered dangerous. It is imperative that the diagnosis of perforation should be made at the earliest possible moment, in order that surgical treatment may be resorted to without an instant's loss of time.

The nature of typhoid fever is coming to be recognized as a special septicemia, whose particular locus is in the intestines. Numerous differences exist among the forms which the disease takes, and it seems desirable to divide it with reference to the specific organisms whose products cause the pyrexia. One of the most clearly recognizable differences from standard typhoid is called "paratyphoid" or "paracolon" fever, a disease which resembles typhoid in its clinical course and main characters, but which is caused not by the *Bacillus typhosus*, but by another member of the great colon group to which this organism belongs. Owing to the widespread occurrence of both typhoid and paratyphoid bacilli, the Widal test of blood for diagnosis should be made not only with the regular *Bacillus typhosus* but with the bacillus of beta paratyphoid as well.

ANNUAL MEETING OF THE STATE MEDICAL SOCIETY.

The feature of the ninety-eighth annual meeting of the Medical Society of the State of New York was the adoption of the agreement which had been reached by the Joint Committee of Conference appointed by the State Medical Society and the New York State Medical Association for the purpose of bringing about the consolidation of the two organizations. The unanimous vote on the resolution followed by prolonged applause practically proclaimed the end of medical disunion in New York State—we hope forever. There is still of course the formality of having the State Medical Association adopt the committee's report, but of that there seems no reason for doubt. An unfortunate division that has lasted twenty years is thus brought to an end and the medical profession of the great Empire State will very shortly be able to get away from the undignified position it occupied and which did so much to impair its influence.

The first proof of the new and more satisfactory status of the profession of the State came when without any hesitation or demurrer the two houses of the legislature passed the enabling act for union within a few hours of its introduction, which the Governor as promptly signed. In the past New York legislators have promised that when the united medical profession of the State would come to them for legislation there would be no procrastination in granting it. The present legislature has fulfilled this promise of former bodies and thus given a lively presage of what the undivided regular profession hereafter will be able to accomplish. The scheme of union eventually evolved is of itself an excellent proof of the administrative ability of medical men and is also an earnest for future progress in the organization of the profession. Many, many difficulties had to be met, many delicate questions faced, and problems solved. It has all been well done and the Joint Committee of the two organizations deserve the congratulations as well as the thanks of their professional brethren.

President Hadley's general address at the evening session of the first day's meeting was one of the most important contributions to a true theory of professional education that has ever been voiced before a medical audience at least. His subject was "Conflicting Claims of General and Professional Education." He insisted especially that while early devotion to a profession might make the student a better and an earlier money getter, it did not make so good a man of him. As far as his own personal satisfaction in life and the possibility of making him capable of breadth of view, wide sympathy with his fellow-man and a useful citizen of the commonwealth the narrower professional education was a mistake. The sooner a man's mind turned to his life work the better, but the longer he delayed the narrowing influence of an active professional career also the better.

President Hadley did not hesitate to say that the same premature professionalism has impaired the usefulness of the legal professions. There are more lawyers with large incomes, but fewer Websters and Calhouns than in the old days when the commercial spirit was not so dominant. The motive to make money is not unworthy in itself and when prompted by the

desire to support the family in proper dignity it is even noble, but when it becomes the motive to the exclusion of all others life is not worth while and man's place in the community is lowered to an unworthy degree. President Hadley does not favor the shortening of the college course so as to enable students to begin their work in professional schools sooner, but believes in having many studies undertaken with broader view in the college department count in the medical curriculum. For him anatomy or chemistry studied in the non-professional course is sure to be of more true educational influence than if studied after the specialistic methods of the medical school.

Dr. Algernon T. Bristow's address as retiring President was one of the best of the Presidents' addresses at any Society meeting in recent years. Its subject was "The Status of the Medical Expert." It was an eminently illuminating exposition of one of the saddest phases of modern medicine and at least the abstract which we present should be read by every medical man with the interests of the profession at heart. The Scientific business of the session generally was of very high order. The symposia on Diabetes, on Abdominal Pain and on Nephritis shared in by some of the best special authorities on the various subjects were full of practical interest and suggestions. They contained very little that was mere repetition of previous knowledge and still less of mere conventional information. The sessions were all well attended, even to overflow in the afternoons and evenings, and the Medical Society just before it turns over the new leaf that makes it really the representative of all the regular profession has given an excellent proof of the vitality it retained during all the years of individual existence.

DENTISTS AND PHYSICIANS.

Now that the conditions of the practice of medicine have improved to such an extent as to eliminate many of the evils of a former time it is important also that the practice of dentistry on the highest ethical lines, as a significant department of medicine, should be encouraged by the physician. In recent years the possibilities of even serious gastro-intestinal disturbance as a consequence of bad teeth have come to be generally accepted by conservative medical men. It is not alone that the teeth are an important digestive organ, quite as indispensable for the preparation of food as the stomach itself, but also the presence of carious teeth furnishes a very favorable culture medium in the mouth on which large numbers of bacteria are constantly multiplying and carried down into the lower digestive tract where they may work very serious harm. Whether the contention that this may even cause pernicious anemia be true or not there is no doubt of the possibilities for evil it involves.

All of us have had the experience of discovering that an obstinate case of indigestion, which resisted all ordinary medical treatment, yielded promptly when the patient was provided once more with a proper mastication apparatus and the food was duly prepared for the stomach's action. On the other hand, very few physicians have failed to have the unfortunate experience, after advising patients to consult a dentist, to find in a very short time that the work done within the mouth was not of a kind to give any fair promise of lasting benefit. Dentists either incapable or so hurried that they do not do justice to their patients often make matters worse after slight temporary improvement, to the utter discouragement of the dyspeptic patient, already sufficiently downcast as a result of his stomachic condition.

At the present time, in the large cities of this country particularly, advertising dentists who offer bargains in dentistry are so common and their notices so prominent that many people, if advised to go to a dentist simply without any further directions in the matter, will be almost sure to consult one of these advertisers. As might be expected under the circumstances, the work is botched, for advertising is costly; inexperienced assistants are employed; the operators being very often young and comparatively untried dentists—recent graduates who have not as yet had opportunities that enabled them to judge how teeth should be treated. The consequence is that not infrequently too large fillings are inserted after the destruction of portions of the teeth that need not have been sacrificed, and these fillings are inserted with such lack of skill that within a few months, at most a year or two, the teeth, in worse condition than ever, require to be cared for once more.

No physician at the present time should ever treat a patient complaining of symptoms of indigestion without a thorough examination of the teeth. If the teeth present are insufficient for proper mastication, or if there are carious teeth the patient should at once be recommended to consult a good dentist. It is not, however, sufficient

simply to suggest any dentist, but the patient should be given a good idea of the risk involved in consulting anyone but some member of the dental profession who is thoroughly responsible and whose skill can be relied upon to do what is best for the patient. There is no doubt that physicians can in this way contribute in an important degree to the uplifting of the sister profession of dentistry and enable it to escape some of the demoralization incident to the large number of bargain-counter dentists in the field.

ECHOES AND NEWS.

NEW YORK.

German Hospital Appointments.—Drs. Richard Weil and Otto Hensel have been appointed Pathologists to the German Hospital.

Alumni Association of the College of Physicians and Surgeons, New York.—A smoking concert, under the auspices of the Alumni Association, will be held at Sherry's, Fifth avenue and Forty-fourth street, Monday, February 8, 1904, at 8:30 P.M. Vaudeville entertainment and supper. Tickets may be obtained by sending $2 to E. T. Boag, Registrar, 437 West Fifty-ninth street, New York City, on or before Friday, February 5.

Home for Convalescent Children Given to Orthopedic.—It was announced last Monday at the annual meeting of the New York Orthopedic Dispensary and Hospital, No. 126 East Fifty-ninth street, that Miss Emily A. Watson had given $100,000 to the institution, for the establishment of a branch at White Plains. Miss Watson has also agreed to endow the new home with a fund of $250,000, which makes the total amount of her gift $350,000. She is a member of the hospital Board of Supervisors. The new home will be called the Country Branch and Industrial School. Here convalescent crippled children will be sent, and they will receive an industrial education, besides medical care. Several years ago Miss Watson gave $60,000 to the hospital.

Cornell University Medical College.—The Faculty of the Cornell University Medical College has inaugurated a new scheme in the lines of instruction given by the subordinate professors and their assistants. There are a number of these men who are conducting more or less specialized lines of research in which they excel, and it has seemed desirable to give the students the benefit of the instruction these men are capable of giving and at the same time present a summary as well as detailed knowledge of all the advances made in the different branches in which these professors are experts. In the Department of General Surgery, Prof. Stimson has requested Prof. Kammerer to give the students the benefit of his knowledge upon intestinal obstruction, and Prof. A. B. Johnson upon the surgical disorders of the breast. In General Medicine, Prof. Thompson has asked Dr. Connor to do the same for the subject of the ductless glands, and Dr. Camac will take up the practical aspects of infection and immunity. In General Pathology, Prof. Ewing will inaugurate the work by lecturing himself upon the scientific mechanism of immunity. Dr. Schlapp will follow with a few lectures upon localization in the central nervous system, and Dr. Schultze will end the course with a few lectures upon cerebral hemorrhage, for which he has perhaps the best collection of gross specimens in the country. These lectures will be delivered before the fourth and third year classes of the college. Some of the subjects, however, are of such general interest that invitations will be sent to all members of the Faculty and practitioners who may be interested.

Columbia University.—At a meeting of the trustees of Columbia University, held on January 4, 1904, it was voted to fix the annual fee for tuition in the Schools of Applied Science and in the College of Physicians and Surgeons at $250 from and after July 1, 1904. The annual tuition fee in these schools is at present $200. Since the present fee was fixed the equipment of Columbia University in these departments has been greatly increased, and the number of instructors multiplied. The cost of giving the instruction in applied science and in medicine has steadily grown year by year, and is now not less than twice the amount received from fees for tuition. The tuition fee at the Massachusetts Institute of Technology is already $250, and the fee for New York students who attend the Stevens Institute of Technology at Hoboken is $225. The per capita cost of instruction at Columbia is believed to be greater than that at either of the institutions mentioned. Because of the recent changes in the curriculum at the College of Physicians and Surgeons and because of the new requirements for admission, the per capita cost of instruction there has been increased greatly also. Because of the ample provision made at Columbia University for scholarships which meet the cost of tuition, and for assisting students to pay their own way while taking a university course, it is believed that no deserving student will be deprived of the privileges which Columbia University offers because of the tuition fee.

Charities Report to the Commission in Lunacy.—The eleventh annual report of the State Charities Aid Association to the State Commission in Lunacy has just been issued. Regret is expressed at the failure of the legislature to take favorable action on the bill providing for the establishment of a reception hospital for the insane in this city. The establishment of such a psychopathic hospital has been urged for years by the State Charities Aid Association. Gov. Odell, in his annual message to last year's legislature, expressed himself in favor of the recommendations made, and the legislature for years has committed itself as favoring such a measure, but has done nothing to provide the necessary funds, $300,000, called for in the bill. The report contains the recommendation that an earnest effort be made during the present year to carry the plans for the reception hospital into effect. There should be one such hospital in Manhattan to accommodate about 200 patients, and another in Brooklyn to accommodate about half that number. It is further recommended that these hospitals be located in that portion of each borough, easy of access, and be organized and equipped like other hospitals for the treatment of mental diseases. A measure that meets with the unqualified commendation of the association is the creation by the legislature of the office of Medical Inspector to the State Commission in Lunacy. This State, it is declared, has a smaller representation of the medical profession on its commission than any other, despite the well-known fact that where medical men form a large part of the State commission "there is less danger that the scientific care of the patients will be subordinated to business interests than where the proportion of medical men is reduced to a minimum."

Work of the Crippled Childrens' Hospital at Tarrytown.—The work accomplished by the New York State Hospital for the Care of Crippled and Deformed Children at Tarrytown, N. Y., is set forth in the third annual report of the institution. Dr. Newton M. Shaffer, Surgeon in Chief, makes an earnest appeal for the names and addresses of children who are fit subjects for the institution's care, the age limit being between four and sixteen years, while hopeless cases and children whose guardians are able to pay for treatment are barred. Although the hospital has accommodations for only 25 patients, 52 have been received during the thirty-four months in which it has been in existence. Of these 33 suffered from tuberculous diseases of the joints. There were 27 discharged, of whom 19 were cured, while all were more or less improved. There have been 18 surgical operations on 9 patients, with marked benefit in every case. The average time of treatment of those discharged has been fifteen months and eighteen days. Some of the children operated upon by Dr. Lorenz at the Cornell Medical College Clinic in this city in December, 1902, were cared for during recovery.

City Hospitals Overcrowded.—Bellevue and all its allied institutions are crowded to their full capacity, and to meet the overflow many patients now have to be accommodated on mattresses placed on the floors. The meeting of the trustees, which was informal, was productive of no definite action, but Superintendent Rickard said that on Wednesday, when another meeting of the board will be held, a resolution will be adopted for presentation to Mayor McClellan, asking him to do what he can toward enlarging the institution's facilities.

A census of the patients at Bellevue last week showed that while there are 837 beds there were then 904 patients, the surplus being placed on the floors. Two hours later fifty more patients had been admitted, so that at 10 o'clock 120 patients were lying on improvised beds on the floor. At the Harlem Hospital, which has 44 beds, there were 45 patients. At the Fordham Hospital there were 43 beds and 42 patients. At the Gouverneur Hospital there were 82 beds for 84 patients. The overcrowding was still more emphasized by the report from the Blackwell's Island institutions. At the City Hospital, which has 629 beds, 48 patients were lying on the floor. In the Metropolitan Hospital with with 925 beds, there were 965 patients, 40 being forced to lie on the floor. An unusually large number of cases of pneumonia, amounting almost to an epidemic, has been the reason, according to Superintendent Rickard, for much of the present overcrowding. There are 200 pneumonia cases at Bellevue now. Of the fourteen deaths at the institution yesterday, six were from that disease.

Lecture by Doctor Trudeau.—On January 21, Dr. E. L. Trudeau, at the invitation of Professor James, lectured before the third and fourth year classes at the College of Physicians and Surgeons on "The Relation of Immunity to Pulmonary Tuberculosis." In introducing Dr. Trudeau, Prof. James spoke of him as a representative alumnus of the college, whose life had been given up to the study and prevention of a single disease. After a brief review of the various kinds of immunity, the speaker referred to the more recent work of Behring and to his so-called "Isopathic" immunity obtained in variola and anthrax. This protects longer than any other form and seems to come nearest to nature's method. It seemed a hopeless task to try to produce an artificial immunity in tuberculosis, when nature herself does not do it, but he was led to believe in the possibility from the fact that in autopsies healed foci are seen that remained healed, even though the patients were daily exposed to a reinfection. This was not an absolute immunity, but the resistance of the individual was increased to a point where he gained a victory over the incursion of the death-dealing germs. Referrng to the first crude and laborious attempt in starting a sanitarium at Saranac Lake, there were at least two things in the world that were never recorded, viz., resistance to temptation and the glory of honest but unsuccessful work. Everybody present knew how often he had failed and how it sometimes tempted him to become discouraged. In 1883 he began the experiment of inoculating rabbits with bacilli from birds. Rabbits were protected by the use of attenuated bacilli, and he is now able to get a vaccine eleven years old from bacilli no longer virulent, though having all the morphological appearances of the original. Seven years' work has failed to procure an antitoxin for tuberculosis, but the tuberculin treatment in his hands has been of some benefit, although it should be given only in selected cases, never to pyretic cases. Sanitarium treatment represents what we know; laboratory experiment what we hope for. It was necessary to prove that infection in a sanitarium is no more prevalent than anywhere, in fact, it is less so from actual experiment. The cottage plan of segregation with plenty of sunlight and air had helped to solve the problem Conditions necessary for successful treatment are: climate, rest, fresh air, food, and discipline. One great advantage of sanitarium treatment is that patients are not allowed to overexercise. If a man has any fever or spits blood he is kept quiet, and it is found that exercise is not necessary for him to keep up his appetite. When relapses occur from any cause patients are put to bed and kept in the open air; but everyone cannot sleep out-of-doors because some patients contract neuralgias, sleep badly and cannot get used to it. About 51 per cent. of all cases, however, do well under this method, even with the thermometer at 42° below zero. A series of beautiful lantern slides illustrating the grounds, buildings and general life at the institution completed a very interesting and profitable hour.

Mt. Sinai Hospital's Year.—It was announced by President Isaac Wallach, at the annual meeting of the Directors of Mount Sinai Hospital, held at 149 East Sixty-seventh street yesterday, that the hospital would probably move to its new buildings, Fifth and Madison avenues and One Hundred and First streets, about March 15 or 16. The entire subscriptions to the building fund aggregated $1,435,568.76 on Dec. 1, 1903, $152,139.64 of which was received last year. The expenses of the hospital for the last year amounted to $151,838.22, and the applicants for admission aggregated 6,496, of whom 3,540 were treated in the hospital. This makes a grand total of 76,891 patients admitted to Mount Sinai Hospital since its founding. Taking the patients treated in the hospital, the dispensary and outdoor department, 36,366 patients were treated last year, and the death rate was 10.34 per cent.

Manhattan Dermatological Society.—Regular monthly meeting was held January 8, 1904, at the residence of Dr. I. P. Oberndorfer; Dr. Oberndorfer presiding. The following cases were presented. Dr. J. Sobel presented a female, twenty years old, with an eruption of varying-sized patches and papules of a marked scaly nature; at first observed on flexor surfaces of arms, then on chest, back and extensor

surfaces of upper and lower limbs; the hair line on forehead is likewise scaly. Dr. Sobel was in doubt whether to call it a true psoriasis, a seborrhoid eczema, or an eczema seborrhoism psoriasiformis. Dr. Pisko thought he recognized some typical papules of psoriasis on knees and elbows; the atypical aspect on lower arms he considered due to effects of treatment. Dr. Oberndorfer also observed lesions of psoriasis; the thick crusting on the arms was unlike eczema seborrhoicum; the latter and psoriasis he recognizes as two distinct affections.

Dr. Gottheil placed this case on the boundary line of psoriasis and eczema seborrhoicum. Dr Sobel favored the diagnosis of eczema seborrhoicum, owing to the greasy condition of the scales; the involvement along the hair line of the forehead and the general oily condition of the skin.

Dr. W. S. Gottheil presented the following cases: (1) A boy of ten years of age, showing small, acuminated lesions, with central depression, from which sebaceous-like material could be expressed; situated on the dorsum of both hands, and present about eight years; some lesions disappear spontaneously. He termed it acne corneus. Dr. L. Weiss coincides with this diagnosis and stated that the condition was extremely rare. (2) A typical case of eczema marginatum; of interest was the extensive involvement; almost the entire back, chest and abdomen were involved. (3) A case of epithelioma (upper cheek near eye) in a male, showing excellent results from the use of Marsden's paste. (4) A typical case of lichen planus; the hands and feet well show the glistening, silvery appearance; lower arms and lower legs studded with innumerable papules, and the chest, abdomen and back showing isolated lesions; the mucous membranes of buccal cavity likewise involved. He gives large doses of a 1 per cent. sol. sodium arseniate, 40 to 45 drops, and patients stands the treatment well; no pigmentation following was observed. Dr. Pisko is using a solution of arsenious acid called atoxl also with excellent results. (5) A case of ulcerating lesions involving mucous membranes of the entire buccal cavity, including tongue, tonsils and epiglottis. The patient, a woman of thirty-five years, is asthmatic and poorly nourished, suggestive of tuberculosis, although the lungs show nothing positive. With antisyphilitic treatment conditions became worse; patient now on local soothing applications, with little or no improvement within the past six weeks. A laryngologist pronounced the condition probably pemphigus. Drs. Pisko and Sobel both entertained the latter diagnosis; mouth pemphigus alone is possible without any skin lesions. Dr. Oberndorfer regards it a severe stomatitis; its chronicity could be explained by the poorly nourished state of the patient, who might be tuberculous. Dr. Weiss asked: Is this a case of foot and mouth disease? In tuberculosis of these parts he expected to find the rim of the epiglottis involved. Dr. Abrahams suggested a chronic herpes.

Dr. A. Bleiman showed a man of fifty-four years with superficial ulceration involving roof of mouth adjacent gum, soft palate and neighboring left tonsil; present about one year and about stationary; he sought no advice until three weeks ago. Patient gave an indefinite history of lues contracted thirty-five years ago, but in this long interval never showed any of its manifestations. Condition gives rise to no inconvenience. The right and left side of neck each show an immense enlarged gland. Tentatively placed on KI, patient begins to show slight improvement. Regardless of this improvement the lesion strongly suggests malignancy. Drs. Weiss, Gottheil and Oberndorfer considered syphilis, tuberculosis and cancer. They, however, regarded it as malignant, and could exclude the other two. Dr. Geyser suggested X-ray with a special tube for mouth cases. Dr. Sobel thinks it is malignant, but would suggest very large doses of KI and note the result. Dr. Pisko thought it might be specific, and related a case of a man, eighty-nine years old, whose syphilis contracted at the age of twenty-one, never showed any lesions until one year ago, when subsequent events proved the lesion to be a gumma. Drs. Cocks, Abrahams and Ochs called it malignant.

Dr. I. P. Oberndorfer showed a boy of five years. The present eruption began at the age of two years; lesions consist of numerous, varying-sized blots upon a deeply reddened and somewhat infiltrated skin; some scratching and excoriations were also observed. Mucous membranes not involved; the entire body is involved, including face and scalp. The boy's bodily nutrition has not suffered, and aside from subjective symptoms is in good physical condition. Presented as a case of pemphigus vulgaris. Dr. L. Weiss stated that the physical well-being of the child favored diagnosis of pemphigus vulgaris; if pemphigus foliaceus, the prognosis was extremely bad; he saw good results with the permanent bath. Dr. Gottheil also believes the prognosis to be good in this case; if pemphigus malignans, would expect to see greater constitutional disturbance. Dr. Abrahams said pemphigus foliaceus tends to progression and the prognosis is extremely bad. The absence of excoriations and mouth lesions favored diagnosis of pemphigus. Dr. Pisko described a condition known as urticaria bullosum; it begins as an urticaria; vesicles and blebs develop and finally shows a picture resembling pemphigus simplex.

Dr. R. Abrahams showed a woman of thirty-five years, with rounded semi-cartilaginous tumors along the back of both arms (elbow region) and along the phalanges; of about four years' duration; painless and about the size of a large cherry; non-adherent and movable; no history of rheumatism or gout; no apparent connection with the joints. He termed it multiple fibroma. A second case, shown by Dr. Abrahams, with the following history: A male of thirty-five years noticed a small pimple on side of nose about four months ago; this he stated was treated by injection and cauterization; following which the present condition confronts us; a large oval, deeply excavated ulceration with raised margins and sharply defined border. The patient placed on KI; healing is slow, but improvement nevertheless marked since beginning of treatment. Drs. Pisko, Gottheil, Cocks and Oberndorfer called it an ulcerating gumma. Dr. Weiss said infection might have been accidental; its appearance suggested syphilis. Dr. Ochs thought it resembled rodent ulcer.

Dr. B. F. Ochs presented three cases: (1) A male with three distinct lesions—*a*, multiple lipoma on arms and abdomen; *b*, alopecia areata (scalp), and *c*, ringworm of the beard. (2) Male; twenty-seven days after suspicious coitus noticed an ulcer on prepuce; painful and enlarged inguinal glands now present; skin clear. Owing to long period of incubation in doubt whether to call it true or simple chancre. The ulcer was considered a chancroid; Dr. Sobel contending that other forms of irritation could produce such an ulcer. (3) Male; presents five or six distinctly raised papillomatous-like lesions along borders of upper and lower lips; present about eight months. Dr. Sobel thought the original lesion might have been a mole and present condition due to irri-

tation. Dr. Weiss called it papilloma, as did Drs. Oberndorfer, Gottheil and Pisko. Dr. Abraham considered it specific; he said, if seen on genitals, would surely call it specific.

PHILADELPHIA.

Medical Jurisprudence Society.—At the annual meeting of this society held January 18, Judge William N. Ashman was elected President; Dr. Henry Leffmann and Paschal H. Coggins were re-elected Secretary and Treasurer, respectively.

Officers of County Medical Society.—At the annual election held on January 20, the following were elected officers of the Philadelphia County Medical Society: President, Dr. Roland G. Curtin; First Vice-President, Dr. Franklin Stahl; Second Vice-President, Dr. Chas. P. Noble; Secretary, Dr. William S. Wray; Assistant Secretary, Dr. R. H. Skillern; Treasurer, Dr. Collier L. Bower; Censor, Dr. H. St. Clair Ash; District Censor, Dr. Albert M. Eaton.

Smallpox Increasing.—For the week ending January 22 there were reported 106 new cases of smallpox, the largest number in any one week for more than three years. Deaths from this increase were 11 less than during the previous week. Deaths from all causes numbered 618, this being 118 less than the week before when the death rate was unusually high.

New Sanatorium for Consumptives.—It is stated that the erection of a sanatorium for the treatment of consumptives will early in the spring be begun at Summit Hill, Pa. A number of Carbon county capitalists are interested in the project and patients are to be treated at very low rates. Climatic conditions are considered excellent. The institution will be conducted on lines similar to that at White Haven.

Butler Relief Corps Returns.—The four physicians and the remainder of the 25 nurses who were at Butler during the height of the typhoid epidemic, returned to this city January 20. The Hospital of Brotherly Love, so named by the inhabitants of Butler, maintained by them there was closed the day before they left, the remaining patients being convalescent and sent to other hospitals. The record made in the hospital was very gratifying, only two deaths occurring in that institution. The gratitude of the citizens of Butler was voiced by Judge Galbraith, who, speaking for the Relief Committee, said in part: "I have said on several occasions that Philadelphia has earned anew the right to be called 'the City of Brotherly Love,' because, when our people were in the throes of an epidemic, many of them suffering and in need of help, then it was that Philadelphia did one of the noblest and grandest things in the way of help for human kind that I have ever known; and I am sure that what they have done for Butler in its present condition, coming here as they did, offering their help, and the way in which they helped, has endeared Philadelphia to Butler for all time to come. This epidemic will go down, I have no doubt, as an epoch in the history of Butler County, and the generations to come will turn back to the year 1903 as 'the year of the epidemic,' and I think that in addition to that historical fact will go down through our annals what Philadelphia has done for Butler."

Milk Supply of Philadelphia.—At a recent meeting of the Keystone Veterinary Medical Association, Dr. Leonard Pearson, State Veterinarian, said that though the great bulk of milk being shipped into Philadelphia was wholesome enough there is still enough contaminated milk sold daily to destroy many lives. The reason given was that the dealer seldom visits the farm where the milk he distributes is produced and at the same time in his dealings forces the farmer down to the last cent. Dr. Pearson said further: "One would naturally expect that the milk purchased by benevolent institutions like our hospitals would have been specially scrutinized, but when an inquiry was started it was found that only three of our hospitals paid any attention to the purity of the milk they fed their patients. The others not only purchased the ordinary market milk, but the determining question as to who should be selected to supply it was the question of price. The dealers assumed that milk good enough for a hospital was good enough for any one. Through the efforts of Dr. Martin and the Health Bureau all the hospitals are now using pure milk." Other speakers stated that more than three thousand quarts of certified milk, at an advance of two cents per quart, are being consumed here daily and the demand is increasing. The position of the dealer in regard to certified milk was stated by Dr. George Abbott. He took the ground that, as good milk is more expensive of production than bad milk, the consumer will get good milk when he expresses a willingness to pay more than he now pays.

Dismissal of Medical Student Upheld by Court.—The efforts of Mrs. Elizabeth O. White to compel the Trustees and Dean of the Woman's Medical College to allow her to resume her studies at that institution have for the present failed. It is stated that an appeal will be taken to the Supreme Court. Mrs. White passed the examinations of the first year satisfactorily, but on her return in the fall was refused admission as a student. No specific reason for this was given by the Dean, only the general statement being made that because of information received the refusal was best for the institution.

CHICAGO.

To Control the Milk Supply.—It is stated that capitalists are planning to control the milk supply of Chicago. According to reports, "the Chicago Dairy Company was organized in Maine, with a capital of $4,000,000. The intention of the promoters is not to raise prices, but to earn the gratitude of the public by prompt service and to keep milk free from any contamination."

Inspection of Hospitals.—Another and more rigid inspection of private hospitals, with special reference to their precautions against fire, was begun during the week. The last previous inspection, in the Spring of 1902, was made by the Building Department alone. The one now being made is, under the joint direction of that department and the Department of Health, a Building Inspector and a Medical Inspector working together in each investigation, and making joint reports to each department. In this way it is hoped to secure better results in the matter of prompt remedy of defects discovered.

Pneumonia.—A comparison of the New York with the Chicago figures of deaths from pneumonia and consumption up to Jan. 2, the date of the last New York report received, shows a close agreement as to pneumonia, but a wide difference as to consumption. The pneumonia deaths formed 18.6 per cent. of the total mortality in Chicago, and 18.7 per cent. in New York. On the other hand, while the consumption deaths were 12.1 per cent. of the total deaths in New York, they were only 0.3 per cent. in Chicago. Chicago's deaths from consumption were 30 per cent. less than New York's.

To Muzzle Dogs.—On January 18, at its regular meeting, the Chicago City Council passed an ordinance providing that dogs must be muzzled all the year round unless led by a chain. The fine imposed for the violation of this ordinance is to be not less than $2, nor more than $10. It will be remembered that the City Council was prompted to take such a drastic measure

by a paper read by Dr. Arthur Dean Bevan at a meeting of the Chicago Medical Society, in which he depicted the horrors of hydrophobia, and subsequently resolutions were adopted by the Society asking for the passage of such an ordinance.

CANADA.

Personal.—Professor W. D. Halliburton, F.R.S., Professor of Physiology in King's College, London, England, delivered a lecture on the Degeneration and Regeneration of Nerves, with lantern slide illustrations, before the Medical Faculty and students of Toronto University on January 22.

Appointments.—Dr. J. T. Moher, Assistant Superintendent of the Institution for the Feeble-minded at Orillia, Ont., has been transferred to the position of Medical Superintendent of the Brockville Insane Asylum, to succeed the late Dr. J. B. Murphy. Dr. Peter H. Bryce, Secretary of the Ontario Board of Health, has been appointed Inspector of Immigration for the Interior by the Dominion Government. He will likely be succeeded by Dr. C. A. Hodgetts who has been discharging for some time the duties of Provincial Health Inspector. Dr. Bryce in his new sphere will also have charge of supervising a new system of medical inspection which it is proposed to inaugurate among the Indian tribes of the Northwest Territories.

Typhoid Fever in Montreal and Suburbs.—The epidemic of typhoid fever which has been raging in Montreal, but particularly in the suburbs of Westmount, St. Louis and St. Henri, is now said to be well in hand. In all there have been over 600 cases, and the cause has been put down to the quality of water furnished to these municipalities. At the present time there are between 120 and 130 cases in the different hospitals of Montreal, and no new cases can be taken in the General and Royal Victoria Hospitals. The Provincial Board of Health of Quebec has had to step in and take a hand in managing the epidemic and have issued a special circular to the physicians of Montreal and suburbs asking for their co-operation in checking the epidemic. During the week ending Jan. 16, there were nine deaths reported from the disease. As only a few cases have developed within the past few days, it is considered that at last it is well in hand.

Western General Hospital, Montreal.—The annual meeting of the Board of Governors of the above institution was held last week, when it was reported that the number of patients treated in the institution in 1903 was larger than for any previous year, and that after deducting the cases which terminated fatally within forty-eight hours of their admission, the death rate was only three per cent. The report also stated that each day the necessity for a new hospital building was becoming more and more marked. Those treated in the hospital during 1903 numbered 600, which was an increase of eleven over 1902. In the outdoor department the number treated was 7,560, or an increase of 990 over the previous year. The average number of days' treatment in the hospital was 18.3, and the total of days' stay was 11,176. Dr. G. H. Matthewson was elected secretary and Drs. F. W. Campbell and F. R. England medical representatives on the Board of Governors.

Royal Victoria Hospital, Montreal—Annual Meeting.—The following appointments were made to the medical staff: Assistant surgeons, Drs. E. W. Archibald and C. B. Kenan; assistant laryngologist and rhinologist, Dr. W. H. Jamieson; associates in medicine, Drs. H. B. Cushing, F. M. Fry and John McCrae; director of the clinical laboratory, Dr. A. A. Bruyere; clinical assistants in neurology, Drs. A. A. Robertson and Malcolm Mackay; clinical assistant in medicine, Dr. Phillip Burnett; clinical assistant in ophthalmology and otology, Dr. F. W. Harvey; second assistant pathologist and registrar, Dr. John McCrae; assistants in bacteriology, Drs. H. B. Yates and J. A. Williams; medical registrar, Dr. H. B. Cushing.

GENERAL.

Tuberculosis Exposition at Baltimore.—The Tuberculosis Exposition at McCoy Hall, which is given under the combined auspices of the Tuberculosis Commission of Maryland, the State Board of Health and the Maryland Public Health Association, was formally opened last Tuesday, to continue throughout the week. It is "an objective presentation to the people of Maryland of the history, distribution, varieties, cause, prevention and cure of tuberculosis," and the careful and elaborate preparations made indicate that, wide as this scope seems to be, the purpose will be amply achieved. The exposition is the most important step yet taken in the crusade against the "white death" in this State, and, being the first of its kind ever held in this country, is attracting so much attention from medical men and scientists in all parts of the country and has received so many exhibits from far and near that it takes on a really national importance. A fuller review of its program will be given next week.

Typhoid at Leadville, Colorado.—A serious epidemic of typhoid fever prevails at Leadville, according to Claude E. Copper, secretary of the board of health. Mr. Copper says there were 500 cases of the disease in Leadville on Jan. 21, and expresses the belief that it will spread. He says the situation is serious, not only because of the rapid spread of the disease in Leadville, but from the fact that there is danger of the Arkansas River becoming contaminated, which would jeopardize the health of thousands of persons along its banks.

Inventor of Iris Diaphragm.—Mr. John Henry Brown, the inventor of the now widely used iris diaphragm, died on December 19, at Hove, England, aged sixty-seven years. He was a dentist, and never having patented his invention, reaped no pecuniary reward from it. In the early seventies he took his home-made model to Smith & Beck, the well-known opticians in Cornhill. The model, although roughly constructed, differed in no essential particulars from the diaphragm at present on the market. Mr. Brown was a fellow of the Royal Astronomical Society.

A Unique Departure.—Year-books are plenty, and in the well-known English weeklies a retrospect of progress is to be found at the close of each year. The *Interstate Medical Journal* has this year published an extra number, a "Special Annual Medical Progress Number," which contains a summary of the year's work, which has been very wonderfully compressed and makes a valuable reference number. We wish the *Interstate* success in its venture.

Japan's Medical Service.—The *British Medical Journal* says the Japanese military medical arrangements are so extremely up-to-date as to be scientifically comparable with those of any nation, while in point of generosity of the provision of medical officers, elasticity and adaptableness to varying conditions, the difference is, perhaps, in favor of Japan. Thus, while base hospitals, field hospitals, dressing stations of three types, bearer companies, and hospital ships all find their place, each division of the army has a medical reserve, which is mobilized simultaneously with it, and serves in the base or reserve hospitals. The medical department also has its own independent transport, and every infantry regiment, cavalry, artillery, engineer, and general transport battalion has a medical staff attached to it of a very complete kind. Besides all these

standing arrangements, the regulations provide for an automatic addition to the personnel of the hospitals in accordance with the number of patients present, without reference to headquarters. Moreover, so long as a military medical officer remains in chief command additions may be made from the civilian population; everything, too, is done to facilitate the co-operation of the Japanese Red Cross Society.

OBITUARY.

Dr. Edward B. Dana, Jr., died at his home in Main street, Metuchen, N. J., last Thursday night, of pneumonia resulting from overwork and exposure in attending to a very large practice. He was about forty-three years of age, and was president of the Board of Health and of the Board of Education.

Dr. Virgil M. D. Marcy died suddenly at his home, in Cape May, N. J., Jan. 21, aged eighty-one years. He was born in Cape May, Jan. 5, 1823, was graduated from Yale in 1844, and two years later from the medical department of the University of Maryland. He was on the first college boat crew that ever rowed in this country. He was a prominent Presbyterian and practised medicine in Cape May from the time of his graduation. He was prominent in Masonic circles.

Dr. Edmund Andrews.—On Jan. 17, Dr. Edmund Andrews underwent an operation for stone in the bladder, the operation having been done by his sons, Drs. E. Wyllys Andrews and Frank T. Andrews. The distinguished patient bore the operation well, and had practically recovered. About noon of Jan. 22 he was seized with cardiac paralysis, and soon expired. Five years ago the first symptoms of valvular trouble of the heart were discovered. For forty-eight years Dr. Andrews was engaged in the practice of surgery in Chicago, retiring two or three years ago. He was born in Putney, Vt., April 22, 1824. He removed with his parents to Detroit, Mich., in 1840, and was graduated from the Literary Department of the University of Michigan in 1849. Three years later he completed a course in medicine at the University and came to Chicago. In 1857 Dr. Andrews occupied a professorship in Rush Medical College and taught there for three years. At that time only two years' study were required for graduation, and, advocating a longer course, Dr. Andrews, with five other physicians, established Lind University. The University was the first to require a four-year course. In 1860 the college was absorbed by the Northwestern University, and Dr. Andrews was appointed Professor of Surgery. At the beginning of the Civil War Dr. Andrews was appointed Surgeon-in-Chief of Camp Douglas, and later was made surgeon of the First Regiment of Light Artillery. With the regiment he saw service in Tennessee and Mississippi. In 1854 Dr. Andrews founded the Chicago Academy of Sciences, and for many years was one of its most active supporters.

Etiology of Exfoliative Endometritis.—A very probable explanation of this condition is furnished by S. Gottschalk (Dent. med. Woch., Vol. 29, No. 48). In the case which he describes there were numerous thrombi in the veins of the uterine mucosa. The mucous membrane had become detached by a dissecting effusion of blood, similar to that which takes place in a premature detachment of the placenta. He believes that these thrombi were due to stagnation of the blood from weak heart action. Microorganisms were not found. He suggests that the routine treatment of scraping the interior of the uterus would be of no avail.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, January 9, 1904.

NEW YEAR HONORS—STATISTICS OF THE MEDICAL PROFESSION—THE STATE REGISTRATION OF NURSES—MUNICIPALITIES AND THE SUPPORT OF HOSPITALS—A NEW DEPARTURE IN SCIENTIFIC "TRANSACTIONS"—THE CHAIR OF MEDICINE AT OXFORD.

There must have been woful disappointment in the crowd of more or less eminent members of the medical profession who were looking forward to New Year's Day for the issue of a list of "honors," in which they hoped to see their own names. Only a few decorations have been given, and these are confined to the Indian Services. Henceforth the "fount of honor," as the Sovereign is styled by the heralds, will play only once a year—on His Majesty's birthday. The official reason is that the two dates are too close to each other; the real one, I suspect, is that Edward VII. has been so lavish in his bestowal of honors that it began to look as if he would in a few years have had no adult male among his lieges left to decorate.

The *Medical Directory* for 1904, which has just been published, shows that the total number of medical practitioners on the British Register is 37,730, being an increase of 439 as compared with last year. London has 6,328 doctors; there are 16,553 in the English provinces and 1,207 in the Principality of Wales; Scotland rejoices in 3,696, while Ireland has 2,629. The naval, military and Indian Services have together 3,016 medical officers, and there are 4,292 holders of British diplomas practising in the colonies and in foreign countries. Here as elsewhere medico-political economists are becoming alarmed at the steadily increasing output of doctors from the schools. A cry for protection is making itself heard from the general practitioners on whom the stress of competition falls most heavily; they ask that a higher standard of preliminary education should be required and that admission to the profession should be made more difficult. Pressure is put on the British Medical Association, which is rapidly developing into a trade-union, naked and unashamed, to take up the cause of the down-trodden practitioner and bring about a medical millennium. The clamorers for protection fail to recognize that the Association has little or no political influence, and that it has not even authority to speak in the name of the medical profession as a whole. Nor do they perceive that the whole problem is an economic one, which can be solved only in accordance with the law of supply and demand. There are doctors and doctors. While there will always be a demand for competent practitioners, the public has no use for the incompetent. And it must be confessed that this fact lies at the root of the hospital out-patient difficulty of which so much is heard. Practitioners complain that patients who could pay them a small fee are attracted to hospitals where they are treated for nothing, and they blame the hospitals for conniving at this abuse of medical charity. A large proportion of the general practitioners in this country have never acquired more than the irreducible minimum of knowldege required to carry them safely through an examination presenting no insuperable difficulties to persons of average intelligence, and in a very few years much of what they learned for the purpose has gone, like Hans Breitmann's party "afay in de Ewigkeit." That there is a good deal of abuse of medical charity is undoubted. But the real reason which makes so

many people not overburdened with money prefer the hospital out-patient department to the general practitioner's surgery is, to speak plainly, that they have no confidence in the latter. For the doctor the first condition of professional success is to create a demand for his skill. Those who throw the blame of their failure on the abuse of hospitals, on underselling by their brethren, on the multitude of quacks, assume that they have a right to be protected by the State and receive the support of the public. With the French prisoner they put forward, as if it were a first principle of Nature, the plea *Faut vivre*, and like him, alas! they lay themselves open to the retort from the public, *Je n'en vois pas la nécessité.*

For many years there has been a movement here to secure the establishment of a register on which the names of properly trained nurses should be enrolled. Something of the kind has indeed been attempted, but only as a matter of private enterprise. The nursing world is split up into several factions which hate each other as bitterly as rival religious sects. Hence any reform suggested in one quarter was certain to meet with strenuous opposition in the other. Now, however, there seems to be a prospect of a State register being established. A measure providing for such registration is to be introduced in the forthcoming session of Parliament. The bill has been drafted by the Society for the State Registration of Nurses, and a number of influential members of the House of Commons have already promised their active support. It is proposed to appoint a Central Nursing Council that will be representative of the medical and nursing professions. The duties of this Council will be to protect the interests of nurses and also to afford a safeguard to the public against untrained or ill-trained nurses, of whom there are said to be hundreds in London at the present time. The Council will regulate and supervise the training of nurses, and the names of none will be admitted to the Register unless they have satisfied the proper authorities of their competence to discharge the duties which they undertake. Besides the names the Register will contain the qualifications and addresses of nurses, and the list will always be open to the inspection by the public. As an illustration of the evils against which the bill is directed it may be mentioned that a week seldom passes without the occurrence of a case in the Coroners' Courts which reveals proofs of incapacity in women calling themselves nurses and gross mistakes committed by them. Naturally they find their chief sphere of operation among the poorer classes, to whom they represent themselves as efficient substitutes for doctors. A nursing authority has recently declared that the mortality attributable to these quack nurses is enormous. The passing of the bill will do much to check practice by such unqualified women, and cannot fail to be a boon to the sick poor.

The municipalization of hospitals has never found favor with the governing bodies of those institutions or with the medical profession of this country. All our hospitals owe their foundation to the charity or enterprise of private persons, and each one jealously guards its independence. If they were to be supported out of the rates, they would of course be subject to the control of the local authorities which levy the rates. It is largely a matter of accident whether those bodies are enlightened promoters of the public welfare, or narrow-minded Jacks-in-office, who grudge every penny needed for safeguarding the public health, and who would certainly not be less obstructive in the matter of providing funds for the efficient maintenance of hospitals. Hitherto the belief has been universal that under the Public Health's Act, local authorities had no power to make contributions to the support of local hospitals out of the rates. Quite recently, however, the Local Government Board has expressed the opinion that it appears to be competent for such authorities to make contributions to the funds of established hospitals. This is a new departure which is hailed with satisfaction by some hospital administrators, while by others it is regarded as the first step to the dreaded municipalization, with the consequent popular control. In connection with this matter it may be mentioned that there is now before Parliament a bill providing for the relief of all hospitals from the burden of rates independently of municipal action. This would doubtless be a great benefit to the hospitals from the financial point of view. The bill will, however, meet with some opposition if the general practitioners, who look upon such a concession to hospitals as an additional handicap on themselves in their struggle with those institutions, are able by lobbying M.P.'s to muster a sufficient array of force against the proposal.

The last three or four International Medical Congresses have been object lessons in the confusion of tongues, and thoughtful observers are becoming convinced that unless a remedy can be found, that institution will have the fate of the Tower of Babel, and for the same reason. At the Congress held last year at Madrid, five, if not six, tongues were recognized as "official," the result being that the meetings gave the impression that the debaters had, like Holofernes and his brother pedants in *Love's Labor Lost*, been at a great feast of languages and stolen the scraps. The want of a universal language of science is making itself more and more severely felt, for to keep up with the flowing tide of medical progress nowadays a man must be able to read at least half a dozen languages. Artificial tongues, such as Esperanto, will never, I think, come into general use; they are as difficult to learn as French or Italian, and when learnt, one has only a *lingua franca* without a literature. National jealousies stand in the way of the general adoption of any living tongue as the recognized medium of scientific intercourse, but there is one dead language which might well serve the purpose, as it did till the beginning of last century. Latin is still used for lectures, theses, and discussions in Catholic theological seminaries, and educated German, Italian, French and Spanish priests can converse with each other without difficulty. If English priests are somewhat less fluent in the colloquial use of Latin, this is due to want of practice. If Latin were properly taught in schools, boys intended for the medical profession would on leaving be sufficiently practised in its use to be able to make it a vehicle for the conveyance of scientific ideas. A disquisition on the subject is outside my province; the remarks here made are merely intended to serve as an introduction to the mention of a fact which may be the first sign of an important revival. Mr. S. G. Shattock, one of our leading pathologists, the editor of the *Transactions of the Pathological Society*, in the last number recently issued has prefixed to the principal papers a summary of their contents in the language of ancient Rome. The Latin might perhaps make Quintilian gasp and stare, but it is clear and precise and serves the purpose for which it is intended quite admirably. Mr. Shattock seeks to disarm the criticism of classical pedants by pointing out that graces of style would be out of place in setting forth scientific facts (*In re scientiæ modo postulatur expositio accurata rerum et legum quibus gubernantur, sine litterarum floribus aut ornamentis*). The matter is of

course in the experimental stage; but he has at any rate succeeded in proving that the fresh facts and new truths of modern pathology can be expressed with perfect clearness and accuracy in Latin. The innovation has already received the approval of several prominent scientific workers in this country.

Mention was made in my last letter of Sir John Burdon Sanderson's resignation of the Chair of Medicine at Oxford. There seems to be a prospect of a somewhat unedifying fight over the choice of a successor. At Oxford itself it is felt that the vacancy offers a good opportunity of making the chair of greater utility to students and of greater credit to the University by expanding the scope of the incumbent's teaching. An Oxford professor cannot teach practical medicine efficiently for want of an adequate clinical field. He has, however, the largest facilities for teaching pathology and for enlarging the boundaries of the science. It is proposed therefore to transform the chair of medicine virtually into one of pathology; to incorporate in it an existing "readership" in that subject, and to make the present holder of the latter office, Dr. James Ritchie, Regius Professor. This proposal is being strongly resisted by a considerable body of Oxford graduates, headed by the President of the London College of Physicians, Sir William Selby Church. This party holds that the Regius Professor should be "a physician of great experience in clinical work and clinical teaching;" that he should be "a man of established reputation in medicine and one who could worthily uphold the dignity of the University in the estimation of the profession and the public;" and further, that he should be himself an Oxford man. Dr. Ritchie is only an Oxford man by adoption, having, like Burdon Sanderson, received his medical training and taken his degrees at Edinburgh. Oxford men are by way of looking upon themselves as the salt of the earth, and the chief objection to Dr. Ritchie is doubtless that he is not one of the elect. He is, however, a man who has already won great distinction as a pathologist, and he has the further recommendations of youth, energy and openness of mind. It is to be feared that the Oxford graduates look upon the Chair of Medicine in their ancient University as a place of dignified repose for a cultured gentleman who combines a moderate knowledge of physic with distinctions of a purely academic kind. If Oxford is not to continue to be a "lost medical school" that is just the kind of professor she does not want.

THE "SANDHOG" AND THE CONTRACTOR.

To the Editor of the MEDICAL NEWS:

DEAR SIR: I have received from my friend, Dr. Noyes, a copy of the issue of the MEDICAL NEWS of Jan. 16, and following his request, I write you in relation to an editorial which appeared in that issue entitled, "The Bends and the 'Sandhogs.'"

I do this without any reference whatsoever to the medical aspect of the case, but purely in respect to the engineering side in relation more particularly to tunnel work.

Our specifications for air-pressure work have invariably contained a number of clauses providing for the preservation and care of the health of employes.

In the construction of the Hudson River Tunnel, which work we have been under the necessity of carrying on for the owners, we have fully enforced all the conditions stipulated in these specifications and the result has been that we have had hardly any cases of injury due either to "bends" or paralysis and only one death, while I do not now remember that we have had any case of permanent paralysis, notwithstanding that we have been engaged on this work with high-air pressure for nearly twenty months continuous work by night and day. From the engineering aspect of this class of work the matters which can be definitely regulated, comprise (*a*) the medical regulations; (*b*) the length of service under pressure; (*c*) the period allowed for decompression and (*d*) the provisions as to the purity of the air in the tunnel.

In caisson work it is usual and desirable to specify also the limit of temperature in the working chamber, but this does not give any trouble in tunnel work on account of the enormous relative volume of the working chamber.

In order to keep the temperature at a moderate limit of say 80° F. maximum, it is often necessary in caisson work to cool the air at the receiver after leaving the compressor, artificially.

In the first instance in our own construction work we enforce the strictest medical examination of all persons working under pressure. This is carried out by our own physician and he selects very carefully and limits employes rigidly in respect of the age of the applicant, being very liberal with candidates who are under thirty, and exceedingly critical of candidates who are over forty years of age.

The examination in respect to the ears is done by the engineers in a practical manner—that is to say, any candidate for work presenting himself, is taken into a light pressure, say fifteen to twenty pounds per square inch, before being engaged for employment, and any who are "blocked" by the pressure are promptly rejected.

Following the acceptance of men by the medical officer, rules have been laid down as follows, for the guidance of employes in preserving their health:

Hudson Improvement Company
NOTICE TO EMPLOYES
Engaged in Work Under Air Pressure.

The following rules, governing personal safety and health, must be carefully observed:

1. Never enter lock with an empty stomach.
2. Use intoxicating liquors sparingly. Take warm coffee freely.
3. Always put on extra clothing while coming out. Pass out slowly.
4. Exercise as little as possible for at least one hour after coming out.
5. Get fully seven hours' sleep in each twenty-four.
6. See that the bowels move every day.
7. Never enter the lock if at all sick.
8. Report all cases of illness at the office *immediately*.

A. J. LOOMIS, M.D.,
Medical Officer.

These notices are posted in the dressing rooms and in various places about the works in plain sight of all employes.

In regard to the length of service, we consider this an exceedingly important, in fact, the most important item in the case. In the construction of the East River Gas Tunnel under the East River at Seventieth Street, N. Y., we worked at times with a pressure as high as 52 pounds above the atmosphere or 67 pounds absolute, and in this case employed the men for two 1½ hour shifts per day with no injurious results. On the Hudson River Tunnel, however, we have not needed to work as high a pressure, as this at any time, and our maximum pressure has not exceeded 45 pounds above atmosphere or 60 pounds absolute. This pressure, however, has been worked under continuously for quite long periods, and the bulk of the work has been car-

ried on between the pressures of 50 and 60 pounds absolute.

Under these conditions we have had no trouble whatever in working the men six hours per day. This has been done, however, by working three-hour shifts and relieving the gang at the end of three hours by the fresh gang and the first gang laying off three hours and then returning to work, so that each of four gangs work three hours and lay off three hours, and work again three hours, constituting in this way, the full twenty-four hours uninterrupted employment.

As we have reduced the depth of the tunnel and consequently reduced the necessary air pressure under which to carry on the work, we have been able at pressures of 20 to 25 pounds above atmosphere or 35 to 40 pounds absolute, to extend the length of service to eight hours actual work without causing any injurious results.

The length of service is not a matter in which any specification can properly treat and the provisions we have always made have been that contractors shall regulate the length of service in accordance with the pressure under which work is being carried on and shall advise his employes fully by notice thereon.

In relation to the period of decompression, notwithstanding all the propositions and suggestions laid down by medical authorities, the specifying or enforcing actual hard and fast lengths of time, are valueless in carrying on practical work. The individual employed has under his absolute control, the period of decompression in the operation of the air valves and in view of the fact that during the period of decompression the temperature is suddenly lowered very greatly, so that the men get chilled through to the bone in coming out from a previous state of free perspiration to the outer atmosphere, we have never found it possible to regulate with any certainty the actual period of time which should elapse in the operation of decompression.

The practical and possible, and the most desirable way in which to regulate this is to instal air pressure with provision for varying stages of pressure, by the introduction of additional air locks, so that there is no single stage involving more than from 15 to 20 pounds reduction in pressure from one stage to the next. In the Hudson River Tunnel, we have invariably used two air locks giving two stages of pressure, more or less equally divided by regulation of safety valves; but we have locks installed that in case of any extremely high pressure being needed, a third stage can be introduced promptly. This arrangement would be perfectly feasible to adopt in caisson construction though as far as I am aware, it has never yet been employed.

The great advantage of this in tunnel work is that a very considerable period of time must elapse in passing from the intermediate to the outer stage of pressure governed by the distance between the air locks, and this permits men not only to equalize themselves to the changing pressure conditions, but enables them to cool off to a material extent after leaving their work before coming to the outer atmosphere.

I have never found regular employes who are willing to remain in the lock one-half of the time which medical regulations call for as necessary; on account, as above mentioned, of the chilling effect of slow outlet from the locks. We prohibit absolutely the use of big valves in locking out men, but with the use of an air lock 6 feet in diameter by 16 feet long, we employ and permit the use of the full aperture of a 1¼-inch valve, and this we consider to be a perfectly reasonable provision for decompression and we have never had any trouble whatsoever in the use thereof. This aperture allows a period of from 75 to 90 seconds per atmosphere.

The effect of rapid decompression often develops "bends," which commonly does not attack the patient until some time after he has left the work.

As a provision against this trouble and against the condition of partial and temporary paralysis, every work of any magnitude whatever should be equipped with a hospital lock on the surface arranged with two stages of pressure, and the lock fitted with cots upon which patients can lie and go to sleep. The hospital lock is also equipped with steam coils and it is seldom that the use of the hospital lock fails to eliminate all trouble of a temporary nature caused by air pressure; usually showing itself in the form of bends or temporary partial paralysis. At the same time some of the cases of temporary paralysis are very obstinate and take a long period of time in which to pass off.

The hospital lock is a most valuable adjunct to the treatment of employes. The use of steam-heated dressing rooms kept at a temperature of 80 to 90° F., and with hot water service to permit of the employes properly and efficiently bathing themselves is also a valuable and necessary adjunct in the maintenance of the health of employes, and the free use of hot coffee furnished to the men, after coming out of pressure, is considered by all persons engaged in air pressure work an absolute essential under modern methods.

In respect to the ventilation, I have before me the records extending over the entire work on Hudson Tunnel and find that at no time under conditions of regular work has the atmosphere shown a greater proportion of carbonic acid gas than eight parts per ten thousand (8 per 10,000), and as a general rule in the regular operation, the proportion does not exceed seven parts to ten thousand.

This is obtained by pumping an excessive quantity of air into the heading and as a general rule the quantity of free air discharged into the tunnel amounts to something like 3,000 cubic feet of free air per man per hour.

The purity of the air we consider usually to be one of the first essentials in maintaining the health of employes. I have recently been engaged in connection with an air pressure proposition for one of our western cities, in preparing specifications, and in these I have provided that the quantity of free air discharged into the tunnel shall at no time be less than 1,000 cubic feet per head per hour, and that the proportion of carbonic acid gas shall at no time exceed nine parts per ten thousand, and that the temperature in the working chamber shall not exceed 80° F., and that, if necessary to obtain this result, the air shall be artificially cooled before delivery into the heading. Regular daily analysis of the air in tunnel heading is part of the duty and equipment of a properly organized engineering corps.

In this particular piece of work, the arrangement for medical examination I consider to be a good one. The work is being executed by the City and under a public commission. This commission employs their own medical man who shall receive a monthly salary and in addition thereto, a fixed specified sum, for the examination of every employe, and this sum is to be charged against and deducted from moneys due to the contractor for the work. I consider this arrangement is a very excellent one, as it keeps the medical examination and supervision of employes in the hands of the public body or company executing the work, and does not leave it absolutely in the hands of the contractor, as is so often the case, with the result that the examination is not regarded or executed as the specifications may provide.

Yours very truly,

J. V. DAVIES.

New York, Jan. 20, 1903.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Ninety-eighth Annual Meeting held at Albany, January 26, 27 and 28, 1904.

First Day—January 26th.

Unanimous Adoption of Joint-Committee Report.—The morning session of the first day was entirely taken up with the reports of committees, especially with the report of the Joint Committee of Conference appointed for the purpose of consolidation with the Medical Society of the State of New York and the New York State Medical Association. As the agreement came from the Joint Committee it was unanimously adopted, thus practically assuring unification after over twenty years of separation. It was followed in the Comittee's report by the Enabling Act which passed both branches of the New York State legislature last week and was signed by the governor January 21. Of the draft of the Constitution and By-laws for the reunited organizations we give only those parts which are novel and which, because of the fact that they separate the business of the Society from the scientific discussions, promise to be of decided advantage for future meetings.

In moving the adoption of the report of the Committee of Conference and its continuance with power Dr. Abraham Jacobi, of New York City, said that two members of the committee deserved special mention for the work done in settling details of the union: Dr. Henry L. Elsner, of Syracuse, and Dr. Wisner Townsend, of New York City. Dr. Bristow, of Brooklyn, the present President of the Medical Society of the State of New York, also deserved the thanks of the profession of the State for his unofficial but untiring helpfulness in the difficult task of making arrangements that would do justice to all interests. In moving the adoption of the committee's report he said that the new constitution promised to make many difficulties of Society procedure simpler and would surely eliminate that most undesirable factor, an aristocratic class, assuming to themselves the power of the Society.

In seconding Dr. Jacobi's motion Dr. D. B. St. John Roosa, of New York City, said that the time had now come for reunion and he hoped that the report of the committee would be adopted unanimously. The split had not been without its advantages. It had brought with it the question of laws for the regulation of medical practice in New York State much sooner than would otherwise have been the case, and as a result had hastened such legislation in other States also. The separation in New York had also brought about the formation of the Association of American physicians, and that surely must be considered to its credit.

Dr. Roswell Park, of Buffalo, Dr. MacDonald, of Albany, and Dr. Potter, who had been members of the Society in 1882, at the time of division, also seconded the motion, which was unanimously carried with prolonged applause.

The report of the Committee on Public Health had many interesting points, among them especially those with reference to the prevention of infectious diseases.

Prevalence of Typhoid.—During 1903 there were in New York State 25,000 cases of typhoid fever with over 1,600 deaths. Yet typhoid is an absolutely preventable disease. It is now recognized that most of the water courses of the State have become dangerously infected. Even the beautiful clear Adirondack lakes have been known to harbor the bacillus. The only possible safeguard seems to be to make every one take measures to kill the typhoid germs in excreta before they are disposed of in any way; that may eventually lead them into any flowing water. Physicians should insist on this but do not. There is a false impression abroad that exposure to severe cold or being frozen kills typhoid bacillus. Too many sad experiences have already shown that this is a most dangerous opinion and one that must be removed from the minds of all physicians as well as other attendants on the sick.

Vaccination and Life Insurance.—The chairman of the Committee on Public Health suggested that if the life insurance companies, instead of merely asking: Have you been vaccinated? were to add to the question, and When? and then refuse to take risks on persons the interval elapsed since whose vaccination left them liable to contract smallpox, they would not only save money but help to protect the community from this dread disease, which would thus lose most of the human material which it now finds available to carry on its existence and aid its power to do harm.

School Inspection and Hygiene.—Finally the committee's report contained recommendations for the extension of the school inspection system all over the State, since its results have everywhere been most satisfactory. They also suggested the teaching of the means necessary for their prevention. This would be real practical teaching in hygiene instead of the often useless teaching in quasi hygiene that now has a place in the curriculum.

Physiological Therapeutics of Iron.—The scientific session was opened by a paper by Dr. Reynold Webb Wilcox, of New York City, on recent theories of the physiological action of iron and the best methods of administering it. Hemoglobin would seem to be an ideal form for iron administration, yet has not proved so in practice. Most of the so-called albuminates of iron are really compounds of some inorganic salt of iron with albumin. This can be demonstrated by means of nitrate of silver which precipitates the albumose material. Dr. Wilcox does not like the use of the expression iron albuminate for these, but prefers to talk of "massed" iron. Even with regard to this, it must be confessed that our ideas as to its mode of action are most vague and unsatisfactory.

Tic Douloureux Cured.—Dr. Sargent F. Snow, of Syracuse, said that in 20 cases of severe facial neuralgia under his observation all of them were afforded relief of enduring character by the treatment of conditions that had produced increases of intranasal pressure or caused tension within the accessory sinuses of the nose. Many of these cases had had from one or two to all the teeth on one side of the jaw pulled for their pain or had submitted to various surgical operations on the facial nerves. Dr. Snow is of the opinion that the hitherto so frequently considered intractable facial neuralgias will be relieved by proper treatment at the hand of the rhinologist. He is firmly convinced that all hemicrania should be treated on this basis before any other serious measures are tried.

Illustrative Cases.—Dr. John O. Roe, of Rochester, gave the details of some severe cases of facial neuralgia which had been cured by intranasal treatment. One of them had had the facial nerve sectioned with relief from symptoms for two years and then relapse worse than ever. After the removal of a spur on the septum she was better for a time and since the opening of the ethmoid cells with evacuation of pus she has had no further pain. In one of Dr. Snow's cases the Gasserian ganglion had been removed with only temporary relief, while the treatment of a sphenoidal condition brought with it surcease of pain that has now lasted for several years.

Operative Removal of Brain Clot.—Dr. W. C.

Krauss, of Buffalo, said that as a rule the operations for hemorrhage within the skull have had such little success that operators have been discouraged from undertaking them. In this case the patient thrown from a trolley car suffered severe external injuries to his head and shoulder. He recovered so well in forty-eight hours that but for the markings he would have returned to work. Then symptoms of brain pressure began to develop and he had some typical Jacksonian epileptic seizures involving, however, the same side of the body as that of the injury. These began as tremors but finally became true clonic convulsions. There had previously been some aphasia and paraphasia—A confused jumbling of words only, the first few of them intelligible.

Differential and Localizing Diagnosis.—When on consultation it was resolved to bring him to a hospital for operation, the patient proved to have more knowledge of what was going on around him than had been suspected. He refused to go. When the ambulance came he said: "No hospital for me," quite plainly, and later when it was arranged to have a carriage come, as if for a drive, he said distinctly: "You cannot fool me." This made the case look strangely like hysteria, and the idea could not be lightly dismissed, but the character of the epileptic seizures left no room for doubt. Accordingly he was taken forcibly to the ambulance and prepared for operation at the hospital. The incision was made over the side opposite to the injury because the localizing symptoms pointed to that side. Some hemorrhage was found in the membranes of the brain, though only to a slight degree.

Source of Hemorrhage.—The blood had come, not from the middle meningeal artery, as was thought at first, but from some emissary veins in the membranes. There was no fracture of either table of the skull. After the pressure was relieved by the removal of the clot there was one subsequent paroxysmal attack and none since, the patient being discharged with very little sign of the serious operation done, after only three weeks. The hemorrhage was evidently due to the contre-coup of the knock on the skull. The surprise is that the man should have suffered so little from concussion of the brain after the accident, yet have had veins on the opposite side ruptured by the counter-stroke. His personal history, however, that of a man who had drunk considerable quantities for many years would seem to throw some light on this point, as such cases have occurred before in alcoholics.

Enuresis Nocturnal and Diurnal.—Dr. G. E. Beilby presented the results of his study of this subject in some 600 to 700 children at the State Industrial School, in Rochester. Among these children from 4 to 8 per cent. are affected. The ailment is very much more common in boys than girls. Of 75 cases carefully studied these last three years, 71 were boys. Most of the patients were from ten to fourteen years of age, though some of them were from eighteen to twenty-one years. Of these at least 65 would be considered to have sufficient intelligence to exercise proper control of function. There were no vesical irritants, stone or the like, and no rectal irritation present. None of the patients suffered from severe phimosis.

Masturbation and Enuresis.—Dr. Beilby found that in all but 5 cases masturbation was practised. Some of the patients denied it strenuously, but were observed carefully by attendants and later admitted it. This connection between nocturnal enuresis was noted by Jacobi as long ago as 1876. In his article in Keating's Encyclopedia of the Diseases of Children, more than ten years later, he insists on this idea. There seems even to be a direct relationship between the amount of the masturbation and the extent of the enuresis. Careful observations were made in this matter.

Pathological Basis of Enuresis.—The superirritation of the spinal centers for erection and ejaculation lie in the lumbar enlargement of the cord not far from the spinal center controlling micturition. The excitation of one of these centers seems to make the others more irritable. It seems scarcely justifiable to say that there is an actual congestion of this part of the cord produced, though such good conservative authorities as Sir William Gowers seem not to have hesitated to say the practical equivalent of this. In some cases there is also partial loss of control of the defecating center situated in the same region.

Treatment and Prophylaxis.—For prevention the first requisite would be to guard against masturbation. In boys in institutions for many years, especially orphan asylums, it is difficult to assure against knowledge and practice of this vice. Some have considered enuresis nocturna as due to laziness, but the deprivance of drink and the enforced diet would break a boy of this. Cold douches to the spine have done good, but this would seem to be a mental effect. The most effective treatment is circumcision, though it may not be needed because of length or adherence of the foreskin. During the time that the cut tissues are tender there is no masturbation. It is possible thus to break up the habit entirely, but very often boys recur to it. Circumcision also has a strong mental effect on the patients and thus aids in the cure. Certain of the sedative drugs, especially the bromides are of good effect in most cases.

Tuberculosis Toxemia.—Dr. Arthur W. Elting, of Albany, reported a case in which such severe symptoms of toxemia developed that the patient suffered from fever almost as if it were sepsis. Only the cervical glands of one side of the head were involved, but after a time the spleen enlarged and there was a suspicion of Hodgkin's disease. After operation so much toxemia occurred with fever and prostration that the patient's life was despaired of. He recovered completely, however, and even the spleen decreased in size. For the removal of the glands the sternocleidomastoid muscle was cut, and after the operation sewed. In spite of the severe after-symptoms there was never any sign of infection of the wound. The surprise of the case was the amount of toxins from a single absolutely localized infection that showed no tendency to become disseminated even when the patient was worst.

Dilated Urachus.—Dr. C. F. Timmerman, of Amsterdam, reported the case of a woman who after a difficult labor suffered from severe hemorrhages. These continued occasionally and stypticin was found to be a valuable agent for their relief. The development of a tumor in the lower abdominal region led to peritoneal section during which in spite of all the usual precautions the bladder was twice opened. The woman recovered from her operation, and other symptoms improved. At a subsequent labor, however, she died from placenta previa. At autopsy it was found that there were two receptacles for urine connected by a narrow passage. The upper one capable of containing one to one and one-half pints of urine was evidently the remains of the urachus or persistent allantoic stalk

dilated. This usually becomes a fibrous cord attached to the umbilicus and cases of this kind are rare.

Further Cases.—In discussing Dr. Timmerman's case Dr. Robert F. Weir, of New York City, said that he had seen two of these cases of persistent urachus, but that this specimen was a very striking example. In one of his cases there had been a connection with the bladder and the little compartment contained urine. In the other the urachus formed a retention cyst. The mucus from the mucous lining evidently accumulates to form its contents.

Insufficiency of the Pylorus.—Dr. Mark I. Knapp, of New York City, said that stomach specialists sometimes find, when they are about to withdraw a test meal after the usual amount of time has been allowed to elapse, that there are no remains of the meal in the stomach. Many reasons were given for this, Boas' explanation that an increased mobility of the stomach had caused the food materials to pass on to the intestines being very generally accepted. Dr. Knapp has, however, suggested as another explanation insufficiency of the pylorus. He detailed some illustrative cases, and believes that after a time this insufficiency may be followed by such increase of the muscular tissue in the effort to make up for the failure of function that stenosis of the pylorus may result. It is this condition of contraction of the pylorus that is responsible for dilatation of the stomach and not the so-called atony of the gastric walls which used to be considered its cause.

SYMPOSIUM ON DIABETES.

The first paper was by Dr. R. M. Pearse of Albany and contained a review of the recent advance in our knowledge of the pathology of diabetes.

Pancreatic Diabetes.—For over one hundred years there have been references in medical literature to diabetes associated with lesions of the pancreas. Bright's classical case with cancer of the head of the pancreas is only an example. New growths and calculi were pointed out as the usual causes. The French especially accepted this idea of pancreatic diabetes, but the Germans did not until after Von Mering and Minkowski's classical experiments by which they showed that removal of the pancreas caused diabetes and eventual death in dogs. In these depançreatized animals diet did not prevent the diabetes, and starvation did not put a stop to it. After these observations pathologists began to notice special conditions of the pancreas in human subjects dead from diabetes. Hanselmann found a special sclerotic change, but it remained for Opie here in America to point out the true pathology of most cases of diabetes.

Islands of Langerhans.—These hitherto mysterious structures are now generally recognized as special organs having no definite relationship except by position to the rest of the pancreas. Dr. Pearse has followed their formation in the embryo and considers that they ultimately become, if they are not from the beginning, independent structures. They bear exactly the same relation to the blood current that other ductless glands bear, and the pancreas all around them may degenerate or become sclerosed from overgrowth of connective tissues, yet the islands remain normal. This is the explanation of the number of cases in which apparently all the pancreas has suffered yet no diabetes resulted and as the result of which the rôle of the pancreas in diabetes has always remained more or less obscure and in doubt. Histological examinations will clear up such doubts.

Cancer of the Pancreas.—Malignant neoplasms of the pancreas sometimes cause diabetes and more often do not. Dr. H. S. Pearse, of Albany, has had the opportunity to investigate 23 of these cases in only three of which diabetes had been present, in two constantly, in one intermittently. In practically all of the cases in which diabetes had not occurred the islands of Langerhans were found uninvolved in the midst of pathologic tissues. In the two cases of true diabetes, however, they were completely destroyed by the neoplasm. In the third case with intermittent glycosuria they were found seriously affected. In the first two cases just mentioned there was found the characteristic hyaline degeneration of the islands which is always accompanied by diabetes. The islands of Langerhans practically always remain unaffected in the syphilitic pancreatitis, which especially in children so often gives a hard pancreas, yet without diabetes. If the pancreatic duct be tied, though the pancreas suffers severely, the islands remain intact.

Other Forms of Diabetes.—The diabetes that accompanies hepatic disease in certain cases is well known, but in recent years it has been found nearly always to be associated with disease of the pancreas. This is especially true of the so-called bronzed diabetes of the French in which there is cirrhosis of the liver with blood pigmentary deposit, but this is found also in the pancreas. Liver and pancreas are much more closely associated in pathological conditions than has been hitherto supposed. Diabetes with lesions of the adrenals has been reported, but associated lesions of the pancreas have been found in some cases. Dr. Pearse saw a case in which, besides hyaline degeneration of the islands of Langerhans, there was complete destruction from tuberculosis of one adrenal and partial destruction of the other. In more than one case of diabetes with acromegaly the pancreas when carefully examined has been found affected as well as the central nervous system.

Physiologic Chemistry of Diabetes.—Dr. David Edsall, of Philadelphia, said that the investigation of the true nature of diabetes as a disturbance of metabolism had as yet far from clearing up the problems involved rather added to the difficulty of understanding the alterations of physiology and chemistry produced. For some time the disease was looked upon as a disturbance of the glycolysis of the tissue—a failure to break up sugar so as to use it properly. It was even spoken of as a failure of oxidizing processes, but it is very evident now that there is nothing so simple as this. Pathology has centered on the pancreas recently. Observations show that a mixture of pancreas and muscle brings about a noteworthy destruction of sugar. This is Cohnheim's observation. Hirsch, a woman investigator, has shown that a mixture of pancreas and liver brings about the same result. Her acute criticism of her own work, however, equally applicable to Cohnheim's shows that this may be only a bacterial and not a true tissue fermentative process.

Abnormality of Glycogen Formation.—It may well be that diabetes really consists in some defect of glycogen formation, or it may be due to the absence of material furnished by the pancreas under normal conditions to complete other functions. In birds the extirpation of the pancreas is followed by diabetes. If both liver and pancreas are removed

then diabetes does not occur. Diabetes may also be prevented by section of the spinal cord in the upper dorsal region. In depancreatized dogs starvation does not suppress the diabetes and the animals seem only to differ from the birds in degree not kind of glycosuric tendencies.

Sugar Metabolism.—The consumption of sugar in the system is certainly much more of a mystery than has been hitherto thought. Diabetics differ from each other markedly in their attitude toward sugar-containing foods. Some have no disturbance of their general condition if they use levulose, though always seriously disturbed by dextrose. Various types of diabetics might be arranged according to the effect on them of the three forms of mannose. These differ so slightly from one another that it is only by stereo-chemistry, the arrangements of the atoms within the molecule, that they can be differentiated one from another, yet different diabetics act quite differently to them. Much cruder differences than this have, however, been noted by good observers. Some diabetics can consume potatoes without evil effect in amounts that, according to the extent of their diabetes, would seem to be out of the question, and though they are not able to consume in the same way other apparently similar starch-containing food materials. Von Noorden has found a group of diabetics who do very well on an abundant oatmeal diet. There may then be as large a number of special ferments for various starches within the body as on Ehrlich's theory there are receptors to the cells. What is needed is more clinical study for the differentiation of cases rather than more theories of sugar consumption, of which we are only beginning to know our ignorance.

Medical Treatment of Diabetes.—Dr. Wm. H. Thomson, of New York City, said that he did not use or counsel the use of opium or its derivatives in the treatment of diabetes. They can only do symptomatic good and cannot improve the disease. In Dr. Thomson's experience the only drugs that have been efficient for the relief of diabetes and its improvement so long as treatment was continued, are the so-called intestinal antiseptics. Of these sodium salicylate, sodium benzoate and a considerable amount of alkaline remedies have proved the most efficient. Cod-liver oil has proved almost a specific. Many cases get better of their symptoms and stay in good condition so long as they take cod-liver oil regularly. The remedy is contraindicated in the very start in those who have great distaste for it and in those who live a sedentary life. Two brothers who came under Dr. Thomson's care over twenty years ago are still alive, though their diabetes was of what would be called severe form, and they were under the ages of forty and under thirty-five years when they came under treatment. They have learned to drink cod-liver oil as if it were cream, and it must be taken in large quantities.

Prophylaxis and Individual Treatment.—In those who have a distinct heredity of diabetes, attention should be directed to the diet even before sugar is found in the urine, for hereditary influences play an important rôle in the affection. The individual must always be treated, not his disease. In the obese special care must be taken of the heart. In young persons who come under observation with a severe form of the disease there should be no sudden change of the diet or the result will almost surely be fatal coma. The bowels must be kept freely open. Arsenic, Dr. Thomson considers in the class of antiseptic remedies that benefit in diabetes.

Pathology not Necessary for Success in Treatment.—Dr. F. C. Shattuck, of Boston, said that a knowledge of the pathological basis of a disease is not necessary to find a cure for it. Quinine and mercury prove this and in diabetes the physician has not been helpless because the cause remains a mystery. Not diabetes, however, is to be treated, but the patient. Dr. Shattuck believes in enforcing an absolute diet at once, not shortening the dog's tail a bit at a time. If acetone and diacetic acid are present then any sudden change in the diet is dangerous. After one to two months of strict diet a test of the patient's capacity for sugars should be made. Often it will be found that some starchy foods may be allowed. Bread and potatoes are the best forms in which to allow it, as patients crave these, as a rule. Dr. Shattuck has never found a so-called diabetic bread that remained palatable for any length of time. In one case he found a distinct variation in the starch content of an important manufacturers bread from one year to the next.

Diet and Regimen.—Diet lists are an abomination. Each patient must be a rule unto himself in this matter. The skim milk diet Dr. Shattuck has not employed because it was hard for him to understand how removing the fat and leaving the sugar of the milk was rational. Many patients improved on this diet, probably because the amount of food was thus limited. Quantity is quite as important as quality, and diabetics easily eat too much. In regard to wines Dr. Shattuck considers that Moselle or California Hock, which has practically no sugar, may be allowed. Outdoor exercise, but never to overfatigue, and care for the function of the skin are extremely important. Massage is also beneficial. With care the prognosis of individual cases of diabetes is not as bad as set down in the text-books, and Dr. Shattuck has many cases that have been under his observation more than ten years, some of them up to twenty years.

Diabetes and Non-diabetic Glycosuria.—Dr. Heinrich Stern, of New York City, reported a case in which, after an operation upon the parotid gland some glycosuria developed. Not more than three-fourths of one per cent. of sugar was passed. Two years later, after much mental worry, the same patient came under observation with over four per cent. of sugar in her urine. Under diet and care this was reduced to about three-fourths of one per cent., but could not be made to disappear. While passing four per cent. of sugar the woman was losing weight, was extremely uncomfortable, had a harsh, dry skin and other annoying symptoms. These all passed away under treatment, yet the sugar could not be made completely to disappear, showing that she was suffering from a non-diabetic glycosuria, giving no constitutional symptoms to which, for the time being, was added a true diabetes.

At the evening session of the first day, President Hadley, of Yale, delivered an address on the

Conflicting Claims of General Education and Professional Education.—He discussed the present attempt to cut down the college course from four years to three as sure to end in still further reductions of it till it became a vanishing quantity. College education broadened and made men of the students. The education at the professional schools became too much the handmaids of commercial success. Commercialism is good, but not to excess. The shorter the course of liberal studies the less a man is developed. He has less personal satisfaction in life and he thinks less of

the good of the commonwealth of which he is a citizen. The older, broader education made better lawyers and doctors for the community than the modern specialism. There are now more lawyers with large incomes, but fewer Websters and Calhouns. Physicians of the present day probably realize the same thing as regards old-time doctors and their contemporaries. Broader men are needed, with less of special intensity and less of personal success, but with more of self-development and getting more real pleasure out of life. Anatomy and chemistry learned outside of the professional school will have more influence on the development of the individual than if learned in the medical course. There must be no lowering of professional standards, but arrangements must be made so that students educated in the college departments will receive full credit for work already accomplished. All members of the learned professions must be educated men first and technologists afterward. The sooner the mind turns to its life-work the better. The later a man's horizon becomes limited to the sphere of his life-work the better.

Status of the Medical Expert.—In the President's Address, Dr. Algernon Bristow, of Brooklyn, described the present unfortunate state of affairs as regards medical expert testimony and suggested, since lawyers would not agree to the abolition of the present system, which tempted unworthy members of a great profession to drag its name in the mire of shame, that before a physician should be able to qualify as a medical expert he should be in practice at least five years, and should pass a special examination on matters selected by the State Board of Examiners. Until this arrangement came into force experts might be only those who were teaching at medical schools or had been in practice for twenty years.

At the President's reception, held at the Hotel Ten Eyck, just before the annual banquet, by special invitation of the retiring president, the members of the Joint Committee of Conference for the Consolidation of the State Medical Society and the State Medical Association received with him as a public acknowledgement of the reconciliation so nearly concluded.

The officers for the ensuing year are: President, Hamilton D. Wey, of Elmira; Vice-President, Joseph D Bryant, of New York; Secretary, Frederic C. Curtis, of Albany; Treasurer, O. D. Ball, of Albany.

(To be Continued.)

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.*

Fourth Regular Meeting, held December 16, 1903.

The President, S. J. Meltzer, M.D., in the Chair.

Reports of original investigations were offered as follows:†

The Changes in the Viscosity of the Blood Produced by Various Experimental Procedures.—Paper by Dr. Burton-Opitz, who described and demonstrated the apparatus used in determining the viscosity of the blood. This demonstration was followed by a discussion of the changes in the molecular friction of the blood after intravenous injections of distilled water, saline, dextrose and alcoholic solutions. The effect of alcohol, when introduced into the stomach and small intestine, was also noted. Next were considered the changes following subcutaneous administration of curare and the differences in the viscosity of arterial and venous blood. K, the coefficient expressing the viscosity, was determined before and after each experimental procedure, two or three determinations being made in each case. It was found that, if distilled water, in quantities of from 5 to 50 c.c., is slowly allowed to flow into the facial vein, the viscosity of the blood is increased, but the increase is not considerable. The following experiment may serve as a sample: The normal coefficient K, in a dog weighing 19.2 kilos, was 802.6, or 5.8 times greater than K for distilled water at 37° C. After the injection of 10 c.c. distilled water the coefficient showed the value 786.0, or 6.0 times greater than distilled water at 37° C. Normal saline solutions produce the reverse effect, *i.e.*, the blood becomes less viscous. In one case after injecting 10 c.c. of 0.7 per cent. NaCl solution, the viscosity of the blood fell from 5.9 to 5.6 times that of distilled water at 37° C. Concentrated solutions of dextrose (5 c.c.) injected into the facial vein, bring about an increase in the viscosity of the blood which is more pronounced than that produced by distilled water. About half an hour after the injection the coefficient K shows again its normal value. If from 3 to 5 c.c. of 10 per cent. or 25 per cent. solutions of alcohol in water are allowed to flow into the facial vein, the molecular friction of the blood becomes greater. The same result can be obtained by introducing the alcohol directly into the stomach, or duodenum. Thirty cubic centimeters of a 25-per-cent. solution were injected into the stomach. The viscosity determined twenty minutes later showed the value 608.09, as against 664.17, the normal coefficient. Thus, instead of being only 7.0 times greater than that of distilled water at 37° C., it changed after the injection to 7.7 times greater. An equally decisive change occurred after injecting 40 c.c. of a 25-per-cent. solution into the duodenum. A marked increase in viscosity also follows subcutaneous administration of curare; however, this result is not evident until the respiratory muscles become paralyzed. Venous blood is slightly more viscous than arterial, but the difference is often very insignificant. In all these determinations a direct parallelism exists between the viscosity-values and the specific gravity. When the viscosity increases, the specific gravity increases also, and vice versa. Not a single exception to this rule could be found. The viscosity was also determined in a dog having very large thyroid bodies. The right gland weighed 57, the left 52 grams. The viscosity-coefficient, obtained by eight determinations, showed the value 1233.17 (specific gravity 1,05028) which means that the blood of this animal was only 3.8 times more viscous than distilled water at 37° C. The lowest previous value obtained by Dr. Burton-Opitz, occurred in a dog after three days of hunger. K equaled in this case 1110.3 (4.2 times more viscous). In general it may be said that the less the viscosity, the longer the period required for extra-vascular coagulation. This was especially well shown in the case just mentioned. Clotting set in after about fifteen minutes.

Survival of an Animal After Removal of Both Suprarenal Capsules, Due to a Previous Grafting of the Organ Into the Kidney.—This paper was reported by Dr. S. J. Meltzer for F. C. Busch and Charles van Bergen, of the Department of Physiology at the University of Buffalo.

Dr. Meltzer stated that in several instances survival of a part of suprarenal grafts was obtained after transplantation into the kidney of the same animal. In one experiment the animal (a rabbit) survived, after apparently all other suprarenal tissue, aside from that

* Proceedings reported by the Secretary, William J. Gies, M.S., Ph.D., New York.

† The abstracts here given have been prepared by the authors themselves. The secretary has made only a few abbreviations and minor changes.

which was grafted into the kidney, had been removed. In this case, after total removal of the left suprarenal a part of the gland, including medulla and cortex, was introduced through an incision into the cortex of the left kidney. Eighty-six days later the remaining right suprarenal was also removed *in toto*. The animal survived the operation and was apparently normal for twenty-one days, at the end of which time it was killed in order to examine the graft. This was found, upon histological examination to have been in part replaced by connective tissue. The surviving cells apparently belong to the medullary portion of the suprarenal. The cortex had been replaced by connective tissue. Blood supply was good. Slides showing the successful grafts were exhibited under the microscope. In this connection, also, Dr. Meltzer showed, under the microscope, a section of Zuckerkandel's organ, the chromophilic bodies of which are similar in nature to the chromophilic granules of the medullary portion of the suprarenal capsule.

On the Absence of a Cane Sugar Inverting Enzyme in the Stomach.—It was shown by Professor Lusk that free hydrochloric acid and not an enzyme caused the inversion of cane sugar in the stomach.

A New Head Holder for Rabbits, with Demonstration.—Frederic S. Lee.

The following reviews were made:

The Action of Potassium Cyanide Upon the Unfertilized Egg.—Paper by Holmes C. Jackson. Loeb and Lewis were the first to note the fact that unfertilized eggs (of the sea urchin), when placed in $\frac{n}{1000}$ KCN solutions, retain their capability of fertilization much longer than when suspended in normal sea water. This was ascribed to the action of the KCN in inhibiting intracellular autolytic processes which lead normally to maturation and finally death. The bactericidal action of KCN was excluded, as the result of experiments in which eggs apparently died as rapidly in sterile as in putrid sea water. Gorham and Tower's experiments, in the same connection, indicated, on the other hand, that the effect of KCN was entirely bactericidal. The sterile eggs retained their capacity for fertilization longer under absolutely sterile conditions than when placed in $\frac{n}{1000}$ KCN. As the question now stands, there exist two almost identical series of sterilization experiments by two pairs of investigators with results diametrically opposed to each other. Critically considered, the more carefully conducted experiments seem to be those by Gorham and Tower; and in the lack of further evidence in favor of an intracellular action of KCN in this connection, we must conclude that the destruction of the bacteria by the KCN removes the condition which causes the death of the cell, and in the absence of which the eggs retain their potential power for growth after fertilization.

Results of Recent Investigations in Proteid Chemistry.—Paper by P. A. Levene. Recent work on the chemistry of the proteid molecule has furnished explanation of many biological phenomena. Thus, in certain pathological conditions there appears in the urine a sulphur and nitrogen containing substance, cystin. The source of the substance in the organism had been unknown, until, through the efforts of Mörner and Embden and others, its radical was demonstrated to be a normal constituent of the proteid molecule. The chromatin of a developed cell differs from that of an unfertilized egg by the presence in it of radicals of purin bases. It is probable that these bases are derived from the histidin radical, which is also a normal constituent of proteids. Hemoglobin is known to be absent from the unfertilized egg and it appears only in course of development of the embryo. It was shown recently that the non-proteid part of hemoglobin is a pyrrol derivative, and it is probable that a pyrrol radical is present in the proteid molecule. Chlorophyl is also a pyrrol derivative, a fact further establishing its close relationship to hemoglobin. The work of Emil Fisher points to the way in which the various component radicals may combine in order to form the proteid molecule, and makes probable the eventual synthesis of true proteid material.

NEW MEMBERS.—The gentlemen named below were elected to membership: A. C. Abbott, Isaac Adler, B. H. Buxton, J. McK. Cattell, H. L. Cushing, E. K. Dunham, Simon Flexner, Reid Hunt, Hugo Münsterberg, J. A. Murlin, Horst Oertel, E. L. Opie, Theobald Smith, A. B. Wadsworth, R. S. Woodworth, Naohidé Yatsu.

BOOK REVIEWS.

PHYSICS AND INORGANIC CHEMISTRY. A Manual for Students and Practitioners. By ALEXIUS MCGLANNAN, M.D., Associate Professor of Physiological Chemistry, Instructor in Clinical Laboratory, College of Physicians and Surgeons, Baltimore. The Medical Epitome Series edited by V. C. Pedersen, A.M., M.D. Lea Brothers & Co., Philadelphia and New York.

IF a medical student wishes a pocket-book on physics and chemistry to help him pass his examinations, this is the one for him. More matter could not easily have been condensed into such small compass; its extreme brevity, however, makes a course of lectures or laboratory work imperative for its understanding. Of X-rays the unmodified statement is made that they have the property of "passing through substances opaque to light." Of antidotes in barium poisoning, the author says "soluble sulphates precipitate barium sulphate in the intestinal tract." Why not also in the stomach? Sodium carbonate is given first place as antidote to nitric acid, though we are afraid the carbon dioxide gas disengaged may prove troublesome. Under cryoscopy nothing is said about the blood or any other liquid except the urine. The paragraphs on valency are types of the combination of brevity with obscureness; their words mean nothing except to one who already understands the subject. But, after all, an epitome cannot be a complete text-book, and this certainly well lives up to its title of "medical epitome." Among its worthier features we note the listing under each chemical of its pharmacopœial preparations, and the addition to the important poisonous elements of "toxicology and tests." As a brief scheme for examination review it is as good as the best.

NOSE AND THROAT WORK for the General Practitioner. By GEORGE L. RICHARDS, M.D., Fellow American Laryngological, Rhinological and Otological Society; Otologist and Laryngologist Fall River Union Hospital, etc. International Journal of Surgery Company, New York.

THIS book, based principally on the author's own experience, is intended as a working guide for those with little experience in the treatment of nose and throat affections. And we are pleased to see that the author talks about his treatment, not in the perfunctory manner of so many treatise writers, nor in the "complete" manner of those who must give every kind of treatment ever used, but as if he believes that you are going to use his treatment in your very next case, and you really want to know just what to do. In tonsillar hemorrhage he avoids the use of hemostatics, such as

alum, Monsell's solution, etc., but recommends hydrogen peroxide, hot water or ice. He always has a long hemostat in his tonsillotomy outfit for a vessel which is spurting. We agree with him that the acute inflammations of the antrum commonly tend toward recovery, and warn against too much readiness to pull a tooth or operate in these conditions. The illustrations, mostly selected from foreign works, are poorly printed. More of them should have been included in the section on the throat. The paper, printing, etc., have a cheap appearance quite in contrast with that of most of the medical books of to-day.

A Text-book of Obstetrics. By Barton Cooke Hirst, M.D., Professor of Obstetrics in the University of Pennsylvania; Gynecologist to the Howard, the Orthopedic and the Philadelphia Hospital, etc. Fourth edition, with 746 illustrations. W. B. Saunders and Company, Philadelphia, New York and London.

As almost all the diseases of women are consequences or complications of childbirth, their preventive treatment is in the hands of the obstetrician. This is the keynote of the present revision, and the author, himself a noted gynecologist, has devoted much attention to the diseases of the genital organs associated with or following childbirth. In addition the recent literature has been reviewed, and changes and additions made with a mind always for the more ready cure of the patient. In a previous review our appreciation of this highly illustrated book was manifested. The author discusses at some length the propriety of attempting to relieve the suffering of the second stage, and believes that it is only humane to do so as far as is possible without interfering with the labor. He considers ether "an efficient, convenient and satisfactory agent" for this purpose, advising that it be used only a few drops at a time, only when the pains come on, and only to produce analgesia not anesthesia. For convenience of administration, ease of control and lack of unpleasantness to the patient, we think that most obstetricians prefer chloroform. To avoid lacerated perineum his advice, if it is evident that the vulvar opening must be torn, is to nick the sides of the vulva rather than let the perineum tear perhaps into the rectum. He sometimes waxes sarcastic over the bungling obstetrical work so often seen. The illustrations are all that could be desired and are well-executed, and the book as a whole is one that it gives us pleasure to commend.

A Manual of Hygiene and Sanitation. By Seneca Egbert, A.M., M.D., Professor of Hygiene and Dean of the Medico-Chirurgical College of Philadelphia, etc. Third Edition, Enlarged and Thoroughly Revised. Lea Brothers & Company, New York and Philadelphia.

For a brief real hand-book of the important subjects that it treats, there is probably no manual of hygiene that is as complete and as practical as this handy five-hundred-page volume of Professor Egbert's. It is really surprising how completely such technical subjects as the antitoxin theory, Ehrlich's lateral chain theory, immunity and our limited knowledge of toxins and ptomains are discussed. The chapters on personal hygiene, on school hygiene and on military hygiene deserve to be read not alone by physicians but by everyone interested in these special subjects. In the chapter on personal hygiene occurs the very apt quotation from Fothergill with regard to the use of alcohol that is very pat at the present time. "First, never have alcohol in the brain when it has work to do; second a little alcohol betwixt a man and past trouble is permissible, but it is not well to put alcohol in front of a coming trouble." The quotation is worth remembering in the light of recent discussions as to the physiological effects of alcohol. Dr. Seneca's book deserves the popularity that has brought it into a third edition within a few years.

Transactions of the Southern Surgical and Gynecological Association. Vol. XV. Fifteenth Session, held at Cincinnati, Ohio, Nov. 11, 12 and 13, 1902. Edited by W. D. Haggard, M.D. Published by the Association.

These transactions contain their usual quota of interesting papers and discussions. H. H. Young contributes a dissertation in the surgery of the lower ureter, which contains much that is new and valuable. G. H. Noble describes a method of perineorrhaphy intended to reproduce the pelvic floor more perfectly, and a method for repairing complete tears, which diminishes the risk of infection from the rectum. The same author, A. H. Ferguson and F. F. Simpson each publish different plans of employing the round ligament in correcting malpositions of the uterus. The volume embraces reprints of thirty papers.

A Laboratory Guide in Urinalysis and Toxicology. By R. A. Witthaus, A.M., M.D., Professor of Chemistry, Physics and Toxicology in the Medical Department, Cornell University. Fifth edition. Wm. Wood & Co., New York.

Primarily intended as a working guide for the author's students, this little volume has found a much wider sphere of usefulness. It gives in condensed form schemes for carrying out qualitative analyses of inorganic substances; a fairly complete review of urinalysis and the outlines of toxicology. It forms a convenient means of refreshing the memory on these subjects and the semitabular form of arrangement makes it convenient for reference.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

Mt. Sinai Reports. Vol. 3. Edited by Dr. M. E. Brill. 8vo, 572 pages. Illustrated. New York.

Transactions of the American Ophthalmological Society. Vol. 10, Part I. 8vo, 196 pages. Hartford, Conn.

Medical and Surgical Reports of the Boston City Hospital. Fourteenth Series. 8vo, 178 pages. Boston, Mass.

Philadelphia Hospital Report. Vol. 5, 1900. Edited by Dr. H. B. Lyn. 8vo, 178 pages. M. H. Porter, Philadelphia.

Manual of the Practice of Medicine. By Dr. A. A. Stevens. Sixth edition. 556 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

The Hospital Formulary of the Department of Public Charities of the State of New York. By Dr. W. E. Dreyfus. Sixth revised edition, 160 pages. 8vo. Illustrated.

Atlas of the External Diseases of the Eye. By Dr. O. Haab. Edited by Dr. G. E. deSchweinitz. 8vo, 232 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

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ORIGINAL ARTICLES.

SOME OF THE PHYSICAL PROPERTIES AND MEDICAL USES OF RADIUM SALTS; WITH REPORT OF FORTY-TWO CASES TREATED BY PURE RADIUM BROMIDE.*

BY FRANCIS H. WILLIAMS, M.D.,

OF BOSTON, MASS.;

VISITING PHYSICIAN AT THE BOSTON CITY HOSPITAL.

THE keen interest which has been aroused by radium seems to make it desirable to give a report of progress concerning this new substance, rather than to wait for the more complete statement that would be possible if further time were given to the study of its action on skin diseases and new growths, and in other ways. I have, therefore, yielded to the kind solicitation of our President that I should read a paper at this time.

The discovery of the X-rays in 1895 was followed by that of the Becquerel rays in 1896. Becquerel found that uranium and its compounds emitted rays that acted on photographic plates enclosed in paper envelopes, and rendered the gases they passed through, air for example, a better conductor of electricity. To substances that gave out radiations of this character Mme. Curie gave the name "radioactive," and she demonstrated that the radioactivity of uranium and its compounds was an atomic property. Believing that this property did not belong to one class of matter only, she tested a large number of metals, metalloids and minerals, and compared their radioactivity with that of uranium.

In the course of this investigation she found some minerals, among others pitchblende, that were much more radioactive than was to be expected from the uranium present in them, and from this fact she inferred that they must contain a new substance, in small quantities, that was intensely radioactive. After long and careful work, Prof. and Mme. Curie, in conjunction with M. Bémont, succeeded in extracting from pitchblende the substance they named radium. Later Mme. Curie isolated the pure chloride of radium and determined the atomic weight of radium as 225, a figure which she considers exact within a unit. Demarçay determined the spectrum.

The radioactivity of different qualities of radium salts is determined by reference to uranium as a unit, that is radium has a radioactivity of 1,000 or of 7,000 for example, which means that this radium is respectively 1,000 or 7,000 times more radioactive than uranium. The pure radium chloride is said to have a radioactivity of about 1,800,000; the amount of radium of such quality is small.

For practical purposes the strength of a given specimen of radium may be roughly measured by its power to penetrate iron. By means of this test, the purchase of a poor quality may be avoided. The specimens of pure radium bromide that I have render a barium platinocyanide screen distinctly fluorescent when 6.25 cm. (2½ inches) of iron are placed between them and the screen.

The *salts* only of radium, chloride or bromide, are used; metallic radium, like sodium, being unstable in the air.

*Physical Properties of Radium.**—Radium has five properties that especially deserve notice, which obtain constantly without appreciable loss in weight: (1) It maintains a temperature above its surroundings under thermal insulation; a temperature of 1.5° C. has been observed. (2) It is luminescent. (3) It is a spontaneous source of electricity. (4) It gives out three kinds of rays, named by Rutherford, alpha, beta, and gamma. (5) It produces in surrounding objects what Mme. Curie has called "induced radioactivity," what Rutherford has termed "excited radioactivity," and Soddy now designates as "imparted radioactivity." With our present knowledge of the subject, this latter word seems the most appropriate. This imparted radioactivity is caused by what Rutherford has named "emanation."

It is not necessary to discuss the first three properties of radium, but a few words concerning the last two will be useful.

Rays from Radium Salts.—The alpha rays constitute the largest part of the radiation. They are easily absorbed and are slightly deflected by a strong magnetic field. The beta rays are not so easily absorbed as the alpha. They are more strongly deflected by the magnetic field than the alpha rays, and in a different direction, but in the same direction as cathode rays. The gamma rays are the most penetrating of the three kinds of rays. They are not deviated by the magnetic field. (See the following diagram, taken from Mme. Curie's thesis, which shows the three types of rays and the effect of an electromagnet upon the alpha and beta rays.)

The rays from radium increase the electrical conductivity of gases, excite phosphorescence and fluorescence in certain substances, act on a

*Read at the meeting of the Boston Society of Medical Sciences, December 15, 1903.

At this meeting pitchblende was shown. The luminescence of preparations of radium salts of the radioactivity of 1,000, 8,000, and upwards of 1,500,000 (pure radium bromide) respectively, together with the power of these salts to excite fluorescence and phosphorescence, and to increase the electrical conductivity of the air were demonstrated. The ability of pure radium bromide to penetrate thick masses of copper and iron was also demonstrated. The beta and gamma rays were separated by means of a powerful electromagnet. The spintharíscope was shown. Lantern slides made by radium rays were not shown for lack of time.

*The history and physical properties of radium are drawn for the most part from the thesis of Mme. Curie, "Recherches sur les substances radioactives," presented to the Faculty of Sciences of Paris, 1903, a copy of which I obtained in Paris through the kindness of Dr. Bèclére.

photographic plate, and produce both harmful and beneficial effects on animal tissues.

Emanation.—The emanation, which is thought to be a gas, imparts radioactivity to objects that have been in the neighborhood of radium salts for a sufficient period: that is to say, these objects, even after removal from the radium, give out rays for a certain length of time.

Fig. 1.

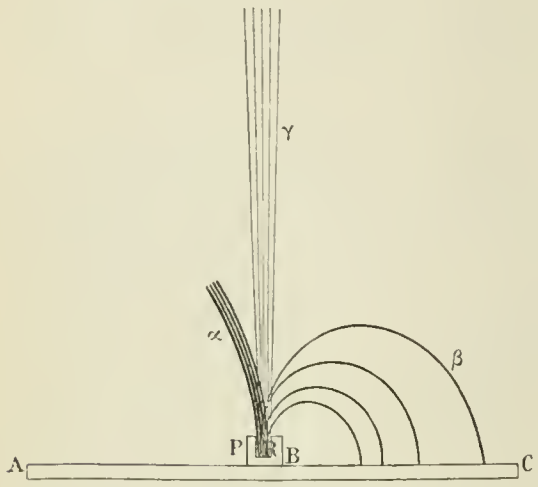
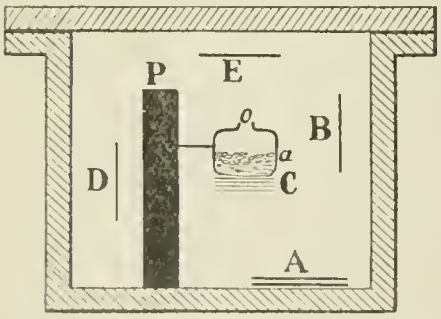


Diagram taken from Mme. Curie's thesis of 1903, illustrating the manner in which the alpha and beta rays are deviated by a powerful electromagnet.

The following diagram is given to show the conditions under which the emanation acts.

If the unstoppered flask *ao*, containing radium salts, is placed in a closed receptacle and kept there for a day, the plates A, B, C, D, E, become radioactive. If, however, the flask is stoppered,

Fig. 2.



Cut taken from Mme. Curie's thesis of 1903, illustrating the manner in which radioactivity is imparted to surrounding objects by emanation.

no radioactivity is imparted to these plates. This experiment, described by Mme. Curie, shows that the *rays* do not play a direct part in the production of the imparted radioactivity, for the plate D, which is protected from the radiations by the thick lead screen P, is made precisely as radioactive as the plates B and E; the radiations can pass through the glass; the emanations cannot. The radioactivity of a plate increases with the length of exposure up to a certain limit, is the greater up to a certain limit the stronger the radium, and disappears in the process of time when withdrawn from the action of the radium.

Radioactivity is imparted more readily when the radium salts are dissolved in water than when they are in a solid state, as in the solid condition very little of the emanation escapes, whereas in the former case it escapes as fast as it is produced. The emanation, when removed with the air from the receptacle containing the radium salts in solution and stored in an air tight vessel, disappears at a definite fixed rate. The radioactivity imparted by the emanation also disappears at a fixed rate.

Mme. Curie states that certain substances, such as rubber, celluloid, paraffin, etc., retain the radioactivity imparted to them longer than can be accounted for by the general law, that they seem to become charged with radioactive energy, under the form of emanation, which they lose gradually while imparting radioactivity to their surroundings. This may make rubber useful in treating certain diseases, as I shall point out later.

The foregoing is a brief statement of some of the physical properties of radium salts, a knowledge of which forms a necessary prelude to their intelligent use in medicine.

We will now consider radium salts from a medical point of view; they may be of service in two ways: First, by their rays; second by their emanation. Let us first discuss the rays and consider what their value may be (A) in diagnosis and (B) in therapeutics:

A. The rays from radium, unlike the X-rays, cannot be used for diagnosis or prognosis, either by means of radiographs or of the fluorescent screen, on account of their inability to show sufficient differentiation between the tissues; therefore, for these purposes they cannot replace the X-rays.

The X-rays, as you are aware, show with wonderful clearness, by means of radiographs, fractures and diseased conditions of the bones; make evident the presence of most varieties of calculi, whether in the kidneys, ureters or bladder, and demonstrate certain conditions obtaining in the chest. By means of the fluorescent screen, they enable the physician to observe, for example, the expansion and contraction of the lungs by watching the excursion of the diaphragm, to observe the position of the heart and follow its pulsations distinctly. By the aid, therefore, of these examinations the practitioner is assisted, for instance, to make an early diagnosis of tuberculosis of the lungs, and to recognize aneurisms in certain cases in which a diagnosis could not otherwise be made. In a word, an examination of the chest is not complete unless it has been looked into by the aid of the X-rays.

To illustrate the inability of radium salts to do this work, I have taken radiographs of a frog, both by the beta and gamma rays together and by the gamma rays alone. The radiographs taken

by the former process showed *no* differentiation between the tissues, and those by the gamma rays alone only slight indication of the bones. The same frog taken by the X-rays showed beautiful differentiation of the tissues, and the time of exposure required was about $^1/_{30,000}$ as long as was necessary for taking the radiographs by radium.

If considerable amounts of radium salts could be used, the rays would then arise from so large an area as to prevent definition, and the improvement in differentiation would be so slight as to be negligible.

Satisfactory radiographs of solid metallic objects, such as keys, can be obtained by radium rays, however.

B. Radium is of value as a therapeutic agent.

The first person, so far as I am aware, to appreciate that radium salts would probably be of service in the treatment of certain diseases was Dr. William Rollins, of Boston, who has done so much to promote the use of the X-rays. Between two and three years ago Dr. Rollins put into my hands a metal box with an aluminum front, containing some chloride of radium, with the suggestion that I use it for therapeutic purposes. I did so employ it, but at that time the radium to be had was weak and I did not obtain definite results.

During the past summer I have seen the successful work being done in London with radium by Mackenzie Davidson, who most kindly showed me all his patients; and also the work begun in Vienna by Holzknecht.

The use of radium salts for therapeutic purposes needs much the same kind of experience as is required for the successful therapeutic use of the X-rays. As with the X-rays, caution must be observed when treating patients, for the sake both of the patient and of the practitioner, for radium if not properly protected, causes severe burns, which do not manifest themselves for a week or more. These burns are painful and heal slowly. Already a number of cases of injury to persons working with radium have been reported.

Precautions.—Radium, therefore, should be kept in a metal box or capsule with a thin mica front or other suitable covering, so that the radiations may be cut off in all directions except that in which the practitioner desires the rays to proceed. To such a capsule I have attached a long, flexible handle, in order to hold the radium at a distance when applying it. This handle is a protection to the practitioner. When not in use, the capsule should be placed in a thick lead box or tube, so that the radiations may be absorbed.

Radium not suitably protected should not be placed in the neighborhood of photographic plates, as it would injure them.

Method.—The method of using the radiations from radium is simple. If the strongest action of the radium is desired, the metal box containing the salts is placed *on* the part to be treated; in this case the box should first be covered with a thin rubber cot, or other suitable substance, which can be readily removed, so that a new cot may be used for each patient and the old one burned up. By this means, the radium capsule does not come in direct contact with the part to be treated, but is separated from it by this new and clean covering. If a weaker action of the radium salts is indicated, the capsule should be placed at a greater or less distance, according to the needs of the case, the intensity of the rays diminishing as the square of the distance.

Exposures.—It is important to remember that an over exposure of a part may result in a burn, and that this burn may not become evident for some days after the exposure has been made. Further, that the exposures differ for different diseases, even superficial ones. Experience, therefore, is necessary to judge not only of the proper length of exposure, but also of its frequency.

Length and Frequency of Exposures.—Exposures must in some cases be longer, in others shorter, and the frequency with which they are given must vary. In some cases the treatment should be pushed; in others harm rather than good would result from this procedure. The exposure, then, must be adapted to the special case, and further experience is necessary to decide the best for all cases, but as a general rule, it may be said that when the beta and gamma rays of *pure* radium bromide (I have discarded the use of the weaker salts) are used together, for the treatment of superficial lesions, and the radium capsule is placed *on* the part to be treated, the length of exposure should be one-half to two or three minutes, according to what the practitioner desires to accomplish.

Exposures should not be made every day. Two or three times a week seems to me the safer procedure, as by this method an interval is given during which progress can be watched.

An exposure of many hours would be necessary if *weaker* forms of radium are used, that is radium of 1,000 or 8,000 activity, before any special results could be obtained, and these weaker forms would not be efficient as compared with the pure radium, so that they need not be considered. Pure radium bromide is none too strong for the work to be accomplished in certain cases; in those in which the full strength is not necessary, the radium capsule can be placed at any distance desired, and the exposure can also be shortened.

CASES.—Thus far my experience with pure radium bromide comprehends 42* cases, many of which were treated at the Boston City Hospital. Of these 42, 9 are diseases of the skin, namely, 1 case of acne, 2 each of eczema and psoriasis, and 4 cases of lupus vulgaris.

In the one case of acne, each pustule was exposed to the radium through an opening in a sheet of lead foil and healing took place.

In the two cases of eczema, two exposures were

*Since this paper was read I have had further cases of superficial new growths and two cases of lupus erythematosus.

given, and there seemed to be some improvement, but the itching was not relieved. The use of radium was then stopped, and the X-rays applied.

In the two cases of psoriasis, the radium was used for small areas only, to test its efficiency. Healing took place in each of these areas a few days after one exposure.

In the four cases of lupus, the results have been very satisfactory. In one of these cases I selected the area in which the disease was most severe for the employment of the radium, and treated the other parts with the X-rays. The portion to which the radium was applied improved much more rapidly than those for which the X-rays were used. Two of the patients are now apparently well, and the two others, for whom treatment was begun later, are improving. The action of the radium in all these four cases was far more prompt than that of the X-rays.

Of the remaining 33 cases, 1 is a small keloid, 5 are cases of rodent ulcer, 23 of epidermoid carcinoma, and 4 are breast cases.

In the first case, the patient had two small keloids, one of which is being treated by radium and the other by the X-rays. Improvement has taken place in both, but has been more rapid in the one treated by radium.

Two of the 5 cases of rodent ulcer have healed, and three show great improvement. One of these latter cases is an extensive growth that was increasing rapidly and the patient was fast losing in weight and strength. The use of radium was followed by marked and striking improvement locally—although at this stage of the disease the X-rays had not succeeded even in arresting the growth—and the gain in the patient's strength has been most satisfactory. In this case the radium has thus far shown marked superiority over the X-rays.

Of the 23 patients with epidermoid carcinoma, including one case of the auditory canal and one of the tongue (these were not readily accessible to the X-rays), 11 have healed and 12 are improving. Among the latter there is present promise that most of them will heal. One of these is a carcinoma of the lip that had been steadily treated by the X-rays, but did not yield to them, the second case only I have seen during the last four years of carcinoma of the lip which was not healed by the X-rays.

The four remaining cases are breast cases, three of which were originally recurrences after operation; the three latter cases are improving, although certain of them were not doing as well under X-ray treatment.

These cases show that radium is useful for treating some skin diseases, and superficial new growths; in this class may be included diseases of the cervix uteri, for example.

The application of radium, like that of the X-rays, is painless.

In new growths, when there is open ulceration and considerable induration, radium, like the X-rays, causes rather free discharge and the induration seems to melt away. The pain that sometimes accompanies this process is due, I think, to small collections of fluid and seems to be caused by their pressure, as it is relieved after free discharge.

Tests with Beta and Gamma Rays; Use of Gamma Rays Alone.—I am now endeavoring to determine to what depth the healing action of radium salts may go. The method of approach to this question may be of interest to you. The experiments* to be described were made in a dark room with one of my specimens of 50 milligrams of pure radium bromide, and in making them the beta and gamma rays only needed to be considered, as the alpha rays are absorbed by the mica front covering the capsule. The two former used together cause healing in certain superficial cases, as we have seen. To learn whether or not the beta rays could penetrate deeply, I placed the end of my little finger in their path, after I had first separated them from the gamma rays by means of an electromagnet, and I found that under these conditions, even the flesh of the finger cast a marked shadow on the screen. This experiment, together with others that have been made, shows that most of the beta rays are absorbed near the surface and cannot be used to penetrate deeply. Also, while the beta rays were deflected, I put a sufficient thickness of aluminum in their path to absorb them wholly. I then tested the gamma rays with the same thickness of aluminum, to see if it cut off any appreciable amount of these rays, and found that aluminum even several times as thick interposed between them and the fluorescent screen cast no special shadow upon it. In this way I learned the thickness of aluminum required to cut off the beta rays from this specimen of radium, while allowing the gamma rays to pass, and therefore can easily expose a patient either to the rays that act on or near the surface, or can shut off these and use only the rays that penetrate more deeply.

As a further test of the penetrating power of the beta and gamma rays respectively, I placed a barium platinocyanide screen on one side of the body and 50 milligrams of pure radium bromide on the other and found that the gamma rays used alone made the screen fluorescent; that this fluorescence was much increased by the addition of 50 milligrams more of pure radium bromide but that the illumination of the screen seemed to be the same whether the gamma rays were used alone or with the beta. This experiment showed that the gamma rays can pass through the thickest parts of the body and that as we have already seen, the beta rays are more easily absorbed than the gamma.

Another question to answer was whether or not the gamma rays healed, and in order to do this it was necessary to find out the proportion of the beta and gamma rays given off by the radium salts, in order to know what exposure

*I had the privilege of making these experiments in the Lowell Laboratory of Electrical Engineering, of the Massachusetts Institute of Technology.

to make. This I determined by means of my fluorometer,* which showed that there were at least fifteen times as many beta as gamma rays. Therefore it seemed that the exposure given when the gamma rays alone were used must be longer than when they were employed in combination with the beta rays, or that it would be necessary to use a larger quantity of radium. I may mention, by the way, that thus far I have seen no irritation result from an exposure to the gamma rays that was twenty times as long as that given when the beta and gamma were used together. We may infer from this that the beta, rather than the gamma rays, are the ones that cause the burns.

The next step to take in order to determine whether or not the gamma rays could heal was to treat some skin diseases or superficial new growths with them alone. If these did not heal, then the attempt to treat deep seated new growths with radium might be abandoned, and a number of suffering patients be prevented from subjecting themselves to long, anxious, clinical tests in the hands of many practitioners. The trial I am making does not involve detriment to the patient, as it does not delay for more than a short time the use of the beta rays in case the gamma rays alone do not prove efficient.

If the gamma rays are thus used, a sufficient thickness of aluminum must be put over the radium capsule to absorb the beta rays, for if the latter were not cut off, the exposure required for the small proportion of gamma rays given off by the radium would result in a burn from the beta rays.

So far as I am aware, my own cases of skin diseases and external new growths are the first to be treated by the gamma rays alone. Some of these tests are not yet finished, and the question of how much help can be obtained by using the gamma rays only, for treating deep seated new growths, I shall take up on another occasion, but these tests have demonstrated that the beta rays should not be used with the gamma for such new growths.

Radium Rays and X-rays Compared.—It will be interesting to compare the radiations from radium and the X-rays as a therapeutic agent in the treatment of *skin* diseases and *external* new growths. We shall see, I think, that the comparison at the present time is greatly to the advantage of the radium, and quite in contrast with the comparison which was made between radium and the X-rays for taking radiographs or for fluoroscopic examinations. In the first place, when radium is employed for healing purposes no cumbersome apparatus is necessary; radium is portable and always ready for use. Further, the dose from radium is uniform, the strength of the output does not vary, so that the dose depends entirely on the length of exposure and the distance of the radium from the part to be treated. Radium may be applied to parts which are not readily accessible to the X-rays, as the mouth or vagina. Furthermore, the healing action of the radium is more prompt. The treatment, therefore, extends over a shorter period, and fewer exposures are required than when the X-rays are used. Radium has the further advantage of bringing about healing in some cases where the X-rays have failed after careful and long continued treatment by them. On the other hand, the following cuts published in this journal, October 3, 1903,* of a patient whom I treated with the X-rays, illustrate a type of cases in which radium would probably not be of service, at least with the amounts now at our command.

Fig. 3.

Case 78, A. D., twelve years of age. Microscopical diagnosis, lymphosarcoma after first operation and round-celled sarcoma after second operation. Duration, seven years. Before treatment by the X-rays.

Except, however, for certain classes of cases and the present superiority which the X-rays have of being able to cover larger areas than radium, as in cases of extensive psoriasis, the advantage at this time lies chiefly with radium. Of course, I need hardly say, it is yet too early to give a final and definite opinion as to the value of radium salts as a therapeutic agent. Sufficient time has not yet elapsed to enable us to know how permanent the excellent beginnings will prove. The X-rays have had a longer trial and, as we are aware, have done good service, and in regard to permanency of effects in cases of new growths,

*Described on page 641 of the third edition of "The Roentgen Rays in Medicine and Surgery." Published by The Macmillan Company, N. Y.

*Taken from the third edition of "The Roentgen Rays in Medicine and Surgery," by permission of The Macmillan Company.

for example, have compared well with operation in some cases. For instance, in one of my cases of spindle-celled sarcoma the patient was operated on in June and again in September, 1901. A second recurrence took place in the following December, and in January, 1902, the patient was brought to me for treatment by the X-rays. He is now well and has been well for nearly two years. Still other patients, that had and had not been operated on, are well and have been well for about three years, since their treatment by X-rays.

If the results in treating superficial new growths, for example, with radium are only as permanent as those obtained by the X-rays, this

Fig. 4.

Case 78, A. D., twelve years of age. After treatment by the X-rays.

new agent will be of great service, or if such patients remain well for a longer period than has followed the use of the X-rays, we shall have still greater reason to be thankful to the discoverers of this substance.

Emanation.—The disadvantages under which radium seems to lie as compared with the X-rays, in covering large surfaces, may be only a seeming one, for it is possible that by imparting radioactivity to certain substances, such as rubber and celluloid, we may be able to extend the usefulness of radium. In order to do this, a sheet of rubber or other suitable substance may be made radioactive by exposing it to the emanation of radium, and this radioactive surface may be applied to a considerable area of psoriasis, for example.

Further, the emanation may be of service in treating diseases which are on or near the surface of the respiratory passages, in some such manner as that suggested by Soddy,* for the treatment of pulmonary tuberculosis. Whether or not it is fair to expect that this more deeply seated trouble can be helped by the emanation remains to be seen, but the proposed method does not seem to me to hold out much hope for the cure of this disease.

The emanation may also be used to impart radioactivity to liquids and a given liquid employed externally for healing purposes; or internally as a therapeutic agent, as has been suggested.

In conclusion, my experience thus far teaches me that there is much similarity between the action of the radiations from radium and the X-rays; that if the results obtained by radium prove permanent, this new therapeutic agent will be largely used instead of the X-rays, but that the two will supplement each other.

1. Certain diseases promise to yield more readily to treatment by radium and others to the X-rays.

2. A disease that has attacked different parts of the body of a given patient may be better treated in certain regions by radium and in others by the X-rays.

3. It is quite possible that in some cases the two remedies used together on the same area and at the same sitting may accomplish better results than either alone.

LATE RESULTS OF X-RAY TREATMENT OF SARCOMA.

BY WILLIAM B. COLEY, M.D.,
OF NEW YORK.

I have very little to add to what I have already said in my paper read before the American Surgical Association in May, and yet the later histories of the apparently successful cases cannot fail to be of interest to those who are anxious as I believe we all are to determine the exact scientific value of this new therapeutic agent in malignant disease.

A year ago in a brief paper I attempted to outline the limitations of the X-ray in cancer and I emphasized very strongly that it was folly to characterize as cures cases in which but a few weeks or months had elapsed since the disappearance of the tumors. My own later experience has fully justified this conservatism.

Since February, 1902, I have observed 103 cases of malignant tumors treated with the X-ray: 30 recurrent carcinomata of the breast, 42 sarcomata in various localities, 28 cancer of the head, face and neck; 3 miscellaneous. Most of the cases were treated at the General Memorial Hospital under my direction, by Mr. W. P. Agnew and Dr. James Ogilvie.

* "A Method of Applying the Rays from Radium and Thorium to the Treatment of Consumption," British Medical Journal, 1903, II, 197 199

I will briefly cite the after-histories of some of the apparently successful cases:

Case I.—Sarcoma of the Neck, Pectoral and Axillary Region.—Disappearance under four months' treatment. Metastatic recurrence in four months in abdomen and inguinal region. Growth slowly disappeared under one year's continued treatment. Patient's present condition: small tumor in eyelid; growths elsewhere apparently disappeared. January 8, 1904. Since October innumerable recurrences have appeared in the skin and subcutaneous tissues. More abundant in regions subjected longest to the X-ray. General condition one of rapid failure.

Case II.—Inoperable Round-celled Sarcoma of the Pectoral and Axillary Region.—Entire disappearance under five months' treatment with the mixed toxins and X-ray. Recurrence about four months later; second disappearance under resumption of the same treatment, in February, 1903. Local recurrence in August, 1903. The patient is still taking the X-rays and toxins at the present time.

Case III.—Round-celled Sarcoma of the Back, Recurrent.—Disappearance under the X-ray treatment in the summer of 1902; recurrence four months later, removed by excision; X-ray continued twice a week since, as a prophylactic measure. Patient well at present.

Case IV.—Round-celled Sarcoma of the Femur, Involving Two-thirds of the Shaft.—Amputation of the hip-joint advised in February, 1902; refused by patient and family; has had X-ray treatment almost continually from February, 1902, up to the present time. The local tumor nearly disappeared and there has been no increase since. The femur remains thickened and hard. Examinations of the tissues removed from the sinus failed to show any sarcoma elements. Metastatic growth developed in the pectoral region in December, 1902; partially removed by excision and the remainder disappeared under the use of the X-ray and the mixed toxins. A large metastatic growth developed in the right lumbar and iliac region; this softened under the toxin treatment and a large amount of broken down tissue was evacuated in January, 1903, under ether. The patient's physical condition remains fairly good and there is no marked evidence of a tumor at present, although the sinus in the back has not entirely closed and the one in the femur also remains open. During the last few months his general condition has, I think, slightly deteriorated. He has kindly consented to be present to-day, January 8, 1904. Condition the same.

Case V.—Recurrent Inoperable Carcinoma of the Cervix Uteri.—Case of Dr. Jarman. The patient was treated by Mr. Agnew, under my direction, at the General Memorial Hospital, during the summer of 1902. After a few months' treatment all evidence of the growth disappeared and examination in May, 1903, failed to show any return. She was examined further by Dr. Jarman in October, 1903, and was still free from recurrence.

Case VI.—Carcinoma of the Breast, Deep-Seated, Inoperable, Involving Periosteum of the Ribs and Sternum.—The patient was treated at the General Memorial Hospital for about five months, from December, 1902, to May, 1903, with the result that the tumor entirely disappeared as far as could be made out from external examination. General health has remained good; she has resumed her occupation. Subsequent examination, October 1, 1903, shows a local return of the disease. December 15, 1903. There is no ulceration but a slight thickening in the original site of the tumor. The patient is in perfect health and working every day.

Case VII.—Advanced Hodgkin's Disease with Almost Complete Recovery, followed by relapse at the end of eight months, with speedy death. The patient, Mr. V. B., aged forty-three years, was referred to me by Dr. Frank Hollister on September 25, 1902. At that time he was suffering from far advanced Hodgkin's disease with greatly enlarged glands in the cervical, axillary and inguinal regions. The spleen was very much enlarged covering an area 8½ x 11 inches and extending from the left side to within 2 inches of the right ant. sup. sp. and within one inch of the symphysis pubis. Frequent blood counts were made and these confirmed the diagnosis of Hodgkin's disease. The patient was put upon both the X-rays and toxins and improvement was immediate and very rapid. The tumors of the neck, groin and axilla entirely disappeared and he was able to leave the hospital within three months. The treatment was afterward continued by my associate, Dr. F. R. Cook, until March, 1902. In January he had been able to resume his work. The splenic tumor had diminished to about one-eighth its original size and the patient's general health was good. In April he became suddenly worse, developed a large, hard tumor in the region of the liver and died within a few weeks.

One of the most remarkable cases of sarcoma disappearing under the X-rays, is a case of round-celled sarcoma of the neck, recurrent, which was treated by Dr. E. Rodney Fiske, of Brooklyn. The patient had formerly been under my care and was regarded as entirely hopeless. He was treated by Dr. Fiske in December, 1901, with the result that the large recurrent round-celled sarcoma of the neck and axilla entirely disappeared. I showed him before the meeting of the Academy of Medicine in the spring of 1902. Dr. Fiske tells me that a few months later he had metastatic masses in both groins, which yielded to further X-ray treatment. The treatment was continued with more or less frequent intervals of rest up to the summer of 1903, when he was apparently well. He, however, died rather suddenly on September 23, 1903. The exact cause of his death is not known, but I think there can be little doubt that it was due to internal metastases.

Still another patient with a very large inoperable spindle-celled sarcoma of the abdominal wall, which I had considered entirely hopeless, has been under X-ray treatment by Dr. Clarence I. Skinner, of New Haven, since January, 1902. The treatment has been kept up with occasional intervals of rest up to the present time. The very large tumor, the size of an eight months' pregnant uterus has nearly disappeared and at present (October, 1903) he writes me she is feeling very well and attending to her duties as a school teacher.

This was one of the largest growths that I have ever seen nearly disappearing under the X-ray, but it cannot yet be classed as a cure.

Two patients with deep-seated carcinoma, one of the breast, the other of the sigmoid, were apparently greatly improved, but the later history shows the possibility of the X-ray favoring or hastening a general dissemination of the disease while the local condition is improving. This is a point of very great importance and yet, at present there is hardly sufficient data to enable us to settle it. The patient with the breast cancer was operated upon in July, 1902. The operation was only a palliative one and I was obliged to leave behind considerable infiltrated tissue in the pectoral region. I put the patient on X-ray treatment at once; the pain was relieved; the tissues softened and became normal to the touch and the normal movements of the arm were regained. The treatment was kept up with intervals, for nearly a year. When left off for a few weeks, the patient had neuralgic pains in the pectoral region and in the arm. Her general health was perfect. In May she began to complain of sciatica and lumbago. She lost weight. The pains became exceedingly severe and shifted from one region to another. There was no local return of the tumor, yet, I felt convinced there was a generalization of the disease. This opinion was confirmed by continuous and rapid decline in general health, resulting in death in August, 1903.

In the other case, that of cancer of the sigmoid and rectum, the local condition was greatly improved and the tumor which could be readily felt through the abdominal wall, became much smaller, so that it could no longer be palpated. The treatment was carried out by my associate, Dr. F. R. Cook, from October, 1902, to August, 1903. The patient was able to attend to his work. The pain, which had been very severe before treatment, was scarcely affected by the treatment. The patient's weight remained nearly the same the entire time. Early in August he grew worse rapidly and died in less than a month. It should be stated that, in addition to the X-ray, the mixed toxins were given in this case most of the time by his family physician.

In several cases in which small recurrent nodules appeared in the skin, following operation for cancer of the breast, the nodules all disappeared after a few weeks' treatment. In every case, however, there was a speedy return after the cessation of treatment. In one case a gradual enlargement of the sternum and ribs developed while a small skin nodule was being treated in the same region.

Of thirty cases of recurrent cancer of the breast that have been treated at the General Memorial Hospital or in private, in but a single case has a large and deep-seated growth disappeared after six months' treatment.

Prophylactic Value of the X-ray.—This is a question of great importance and the surgeon will more and more frequently be asked whether it is wise to have a course of X-ray treatment after operation for external cancer. At present I do not think we can answer it in a positive way. It will require a very large number of cases covering a period of many years before we can draw any scientific conclusions. There are too many factors that enter into the problem.

The results of operation for cancer of the breast, for example, differ so widely in the hands of different surgeons, that one might reason from one series of statistics that operative treatment was of value, and from another series, that 75 per cent. of patients were cured. If then, it is difficult to determine the value of operation alone, how much more difficult is the problem of determining the value of operation plus after-treatment with the X-ray.

I believe that there are good theoretical reasons for using the X-ray after operation, and yet, I must confess that my results thus far have not given much practical support to the theory. In one patient, I operated a year and a half ago for double carcinoma of breast and removed both breasts and axillary glands. The wounds healed quickly and well, but fearing a return, I placed her immediately upon regular X-ray treatment, four times a week. At the end of six weeks small nodules appeared in the skin in the vicinity of the cicatrix in the very region of the X-ray exposures, and continued to increase in size under prolonged X-ray treatment. In addition, the patient soon became cachectic and showed signs of generalization of the disease.

In another case of carcinoma of the breast, that of a woman thirty-four years old, with a small growth and slight involvement of the axillary glands, I began the X-ray as soon as the wound was healed, a year ago, and kept it up for six weeks to two months. In about eight months a small nodule developed beneath the skin in the center of the area rayed.

In one of the most recent works upon X-ray therapeutics, a trial of the X-ray is advised before operation in operable cases. I believe such treatment positively dangerous for two reasons: first, a possible temporary improvement is likely to blind the patient as well as the physician to the grave danger of general dissemination, even while the local trouble is apparently decreasing; second, if after a trial of the X-ray an operation is decided upon, the surgeon will be less able to appreciate the full extent of the growth and will be inclined to leave behind infected

tissue. Still again, it has been shown that tissues long exposed to the X-rays often fail to heal well.

One month ago I operated upon a patient with far-advanced epithelioma, involving nearly the entire lower lip. He stated that 1½ years ago he had a small epithelioma of several years' standing. Having been told that the X-ray offered better chances than surgery, he tried the former, and after 13 treatments the growth had entirely disappeared. After a few months it recurred locally and the X-ray treatment was resumed and carried out regularly and thoroughly, fifteen-minute exposures being given, but this time with no effect in checking the progress of the disease. When at last he decided to try other means, the growth was very nearly inoperable and the chances of cure exceedingly slender.

Conclusions.—I think we are already beginning to see the evil effects of the too optimistic reports as to the value of the X-ray in cancer. A year ago, in a paper read in this very room, 50 per cent. of cures were claimed and the use of the X-ray was advocated as a substitute for operation.

Pusey and Caldwell,* in their carefully reported series of cases state that of 27 cases of superficial epithelioma, 21 or 77.7 per cent. are, as far as can be told from present condition, cured. Yet, only 7 were well over eight months and only one as long as fifteen months.

A careful review of all the reported cases of cancer treated by the X-ray, together with a personal experience and observation of more than 100 cases of various forms of malignant tumors, have served to confirm and emphasize the convictions already expressed.

1. The use of X-ray in cancer should be limited to recurrent and inoperable cases, with the sole exception of small superficial epithelioma of the face. Even here, I believe, the results of excision will prove to be better and more lasting, save in the proximity of the eyelids and nostrils.

2. It is most misleading to report as cures, cases in which malignant tumors have merely disappeared under the influence of the X-ray, since speedy return is the rule rather than the exception.

3. At the present moment there is no evidence to prove that any permanent cures have been obtained, save possibly in the case of rodent ulcer.

Aniline Poisoning.—Aniline oil exerts its poisonous influence, says A. Wrzosek (Friedr. Bl. f. gericht. Med., Vol. 54, No. 6), especially upon the blood and central nervous system in both man and animals. The portals of entry may be the lungs and alimentary tract as well as the uninjured skin, while excretion occurs chiefly through the urine, in part as such, in part as paramedophenol. Symptoms of intoxication, such as paresis, complete paralyses, convulsions, tetanus and trismus point to an involvement of the nervous system, while cyanosis, jaundice, hemo- and methemoglobinuria indicate breaking down of the red cells. Anatomical lesions are few and not characteristic.

* Pusey and Caldwell, 1903.

ABDOMINAL VERSUS VAGINAL HYSTERECTOMY.*

BY JOHN B. DEAVER, M.D.,
OF PHILADELPHIA, PA.

Cancer of the uterus is the most insidious and deadly malady of the female genital tract that the surgeon is called upon to treat.

Carcinoma in the female occurs more frequently in the uterus than in any other organ or part of the body and affects the cervix in about ninety per cent. of the cases. Unfortunately, many of the women afflicted with this disease suffer from symptoms ill defined, free from pain and with but little discharge until the growth has become so extensive as to involve the broad ligaments, the bladder or the vagina. For this reason, viz., the absence of leucorrhea and pain, the family physician is often unaware of the real nature of the disease in question until all hope of successful surgical intervention has gone. It cannot be too strongly impressed upon the general practitioner that irregular bleedings from the uterus, whether before, during or after the menopause should be viewed with suspicion and thoroughly investigated. No feelings of delicacy should prevent an inspection of the cervix and palpation of the uterine body, nor a fear of consequences deter resort to curettage in suspected cases with examination of the scrapings for malignancy.

A negative finding by the pathologist should be accepted with great reserve and not allowed to controvert unmistakable clinical symptoms, especially in a woman approaching or past the menopause.

I emphasize the latter because, as is well known, epithelioma rarely begins until after the childbearing period. Many of the cases of supposed hemorrhagic endometritis, with a malignant family history, would be better for a complete hysterectomy. It is the practice of the writer to do a complete removal of the uterus in hemorrhagic endometritis under the circumstances referred to. The question of removal of normal ovaries with the uterus need only be considered when the patient is comparatively young and the disease confined strictly to the uterus and is in its incipiency, when it is the writer's practice to leave one or both.

In cases of hemorrhagic or hypermetrophic endometritis with foul smelling discharge curettage should be practised and the findings examined microscopically. A negative finding by the microscope is not to be considered as an argument against the value of the same as an aid to diagnosis, merely indicating that the curette may have escaped the cancer area or that the latter was situated within the uterine muscle.

In discussing the operative treatment of carcinoma of the uterus we must remember that the surgeon too often does not see the case in the early stages, and must decide whether an operation is feasible and what the chances of eradication of the growth will be.

* Read before the American Association of Obstetricians and Gynecologists, Chicago, September, 1903.

The cervix is the most common site of cancer, is usually squamous celled, and in the beginning is essentially a local process, with a hard and indurated cervix and with papillæ elevated from the mucous membrane. As these papillæ increase and enlarge the cauliflower-like growth so often felt, becomes evident. Ulceration and necrosis follow and the crater-like condition, also too well known, may be felt. In the latter stages the vaginal vault becomes implicated, the broad ligaments, the uterus, the bladder and the rectum involved and of course radical treatment can be of no particular use.

To the surgeon the question must always be answered, whether the excision of the cancer area can be performed by section through normal tissue. Palliative measures for the relief of the discharge, the bleeding, or the pain are better done by local measures than by the use of the knife.

To determine the indications for operation a most careful bimanual examination is necessary. If the uterus is adherent and fixed in the pelvis, the broad ligaments extensively infiltrated and the vaginal vault involved, operation is inadvisable. In my judgment the removal of the greater part of the vagina is inadvisable. Cases where there is such involvement of tissue as to require so extensive an operative procedure do much better by thorough curettage and cauterization, repeated if necessary. Recurrence will surely occur in this class of cases and when the radical operation has been performed new channels for the extension of the cancer are opened up. I have found that the pain consequent upon the recurrence of the growth, following late and extensive operation is greater than in those cases curetted and cauterized.

It is always difficult, however, to decide accurately the extent of the growth, especially in cancer of the cervix, and therefore where reasonable doubt exists an exploratory operation can be decided upon, and the radical operation performed as being the most conservative, whether the carcinoma is located at the cervical or at the fundal end. In the early stages a complete removal of the uterus, broad ligaments and the lymph channels in the latter, should guard against recurrence with reasonable security.

The decision as to the operation, whether to perform the ablation by the vaginal or by the abdominal route will depend, in the early stages, upon the particular predilections of the operator. Personally, I would strongly oppose vaginal hysterectomy for carcinoma of the cervix uteri, except in the presence of obstacles necessitating such a course. For intance, a very stout abdomen, nephritis or, old age. It is the practice of the writer to do a complete hysterectomy by the abdominal route in fundal as well as in cervical carcinoma. The vaginal operation offers no advantages over abdominal section, when the latter is properly and intelligently performed, and suffers from the imputation of being an incomplete operation, dangerous to the ureters and liable at any time to give rise to severe secondary bleeding.

The abdominal operation offers an increased space for necessary manipulation, greater security against hemorrhage from a better exposure of the vessels and lessens the risk of injuring the ureters. The field of operation can be kept constantly in view by the Trendelenburg position and gauze packing, keeping the intestines out of the way of injury, and most important, the ability to better avoid infection. In abdominal hysterectomy we are better able to keep beyond the area of diseased tissue, a larger portion of the broad ligaments together with their lymph channels can be excised and individual glandular enlargement noted and removed.

The ever-present danger of injury to the ureters is not so likely to occur in the abdominal route on account of the better exposure of the structures. Expert operators have occasionally severed the ureters and the introduction of catheters makes any pelvic operation safer, yet I confess I have never introduced them for this purpose.

It is usually claimed for abdominal hysterectomy that a thorough dissection of the pelvis can be made with the removal of the infected glands. The lymphatic system of the uterus consists of a rich network of vessels, those from the vagina and lower portion of the cervix following the uterine vessels to glands at the bifurcation of the common iliac arteries, usually three in number, and thence pass upward. The lymphatics from the body of the uterus anastomose with those of the cervix uteri, travel downward to the deep inguinal glands by way of the round ligaments and pass through the utero-ovarian ligaments emptying into the lumbar glands. Yet, with this abundant lymphatic supply, carcinoma of the uterus spreads by continuity of tissue more readily and rapidly than through lymphatic metastasis.

I do not believe that the necessity exists to dissect out the iliac glands, as the additional mortality from operation is not repaid by lessened recurrence. Such enlarged glands as I have removed have been found to be inflammatory and not malignant, and in the event of cancer of these iliac glands the case has become incurable by reason of extensive infiltration of tissues adjacent to the uterus.

Extension downward into the vaginal epithelium, forward into the bladder and backward to the rectum, is much more common than metastasis into the pelvic glands. Epithelioma of the vagina is sometimes overlooked as a point of metastasis or implantation, as the diseased area frequently resembles an excoriation, such as could have occurred in the preparation for operation. Extension into the bladder may be unrecognized, except by means of a cystoscopic examination.

In performing abdominal hysterectomy for

carcinoma I first curette the cancer area, and cauterize with pure carbolic acid, and then re-cleanse the vagina thoroughly. It may be necessary in some cases where oozing persists to tightly sew the cervix, if the cautery fails to check such bleeding. I do not make a median incision in the abdomen, but prefer to incise through either rectus muscle close to the median line, thus avoiding hernia, one of the so-called disadvantages of the abdominal route. In performing hysterectomy I use the usual technic and methods of others, with possibly a few variations. After removing the uterus the bleeding edges of the vagina are whipped over by a lock suture. Gauze drainage is introduced into the vagina from above downward and allowed to project slightly into the pelvis when the peritoneal flap from the anterior surface of the uterus, which carries the bladder wth it, is brought over the projecting gauze and stitched to the posterior wall of the vagina; in this wise completing the operation as an extraperitoneal one. The abdominal wound is closed by tier suture.

The cautery knife of Downs is used and extolled by a few operators, first, because it renders the operation bloodless and secondly, that its ultimate results are presumably better in carcinoma cases. I have always been satisfied, however, with my results by the use of suture and ligature and those cases calling for the cautery to destroy tissue are not ones adapted to radical operation. I might add that a multiplicity of instruments, awkward to handle and which tend to make a complicated out a simple operation, is to be deprecated. The more ideal results obtained in delicate operative procedures often depend upon a simplicity of technic, few instruments and the skilful use of the gloved fingers.

Cancer of the fundus of the uterus is usually an adenocarcinoma and in the early stages the diagnosis depends in a great measure upon the microscope.

The prognosis in these cases is much more favorable than those of the cervix, perhaps 75 per cent. of operations performed early resulting in cure with freedom from recurrence. Such results are due to the slowness with which lymphatic metastasis occurs and to the position of the growth, far removed from the vagina, bladder and rectum. Lubarsch offers the explanation that in cancer of the uterus the epithelial cells are quite large and cannot easily enter the lymph radicles.

Cancer of the body of the uterus requires complete hysterectomy and in the early stages may be removed through the vagina.

The Hemoglobin and Corpuscular Content of the Blood of the Newborn.—It has been found by A. O M. FEHRSEN (Jour. of Physiol., Dec. 14, 1903) that the blood of the infant at term contains a high percentage of hemoglobin, 110 to 115 per cent.; shows a large increase in the erythrocytes with a mean of 6,047,000 per cm.; a well-marked leucocytosis, 18,000 per cm., and an absolute and relative increase in the lymphocytes.

THE OCCURRENCE OF TÆNIA NANA IN TEXAS (THE FIRST, OR, AT LEAST, THE SECOND, REPORTED CASE IN NORTH AMERICA).*†

BY JOHN T. MOORE, M.D.,
OF GALVESTON, TEXAS;
ASSOCIATE IN CLINICAL MEDICINE, UNIVERSITY OF TEXAS, MEDICAL DEPARTMENT; AND SURGEON G. H. & H. RY., GALVESTON.

I TAKE this opportunity of presenting to this Association a case that is of rare occurrence in this country.

On Aug. 2, 1902, a section foreman, who works for the Galveston, Houston and Henderson Railway, consulted me for a severe diarrhea, great weakness, and cramps in the abdomen. He was given a diarrhea mixture and asked to return in case he was not relieved. He came back on August 4, stating that he was no better. I suspected from the history that he was suffering from amebic dysentery or some intestinal worm and asked him to go to the infirmary where he could receive the proper care and have the stools examined. I gave instructions to save all the stools passed and to examine carefully for all intestinal parasites and their ova.

Dr. J. R. Elliott, interne at St. Mary's Infirmary, to whom is due the credit of first finding the ova, reported that he had found the ova of some tapeworm that he thought fit the description of *Tænia nana*. We went over the examination very carefully together and soon became convinced that we had the ova of *Tænia nana*. I ordered an anthelmintic given and instructed them to save everything passed. Much time was spent in washing the stool through a muslin cloth, but without finding anything. I now adopted the plan of putting small quantities of the fecal material in a clear glass beaker filled with water. We were soon rewarded by finding pieces of the worm. We washed quite a good deal of the material, hoping to find the whole worm, or at least the head, but were unsuccessful.

Fig. 1.

Hymenolepis nana (x 18) (Leuckart).

I submitted specimens to Dr. C. W. Stiles, chief of the Division of Zoology, Washington, and Dr. A. J. Smith, Professor of Pathology, University of Texas, for identification. They very promptly verified our diagnosis of *Hymenolepis* (*Tænia nana*), as shown by their notes, which I here publish.

Washington, D. C., Aug. 28, 1902.

Referring again to your letter of Aug. 9, I would state that the specimens have been stained and mounted. Unfortunately, the material is in a poor state of preservation, so that it was impossible to make any very minute observations upon it. Nevertheless, sufficient

*A preliminary note on *Tenia nana* in Texas was published in the University of Texas Medical, April, 1903.

†Read before the State Medical Association, April, 1903, San Antonio, Texas.

was seen to lead me to believe that you are safe in classifying the tapeworm as *Tenia nana*, or, according to the more modern classification of tapeworm, as *Hymenolepis nana* (Siebold, 1852).

C. W. Stiles.

Galveston, Texas, Sept. 10, 1902.

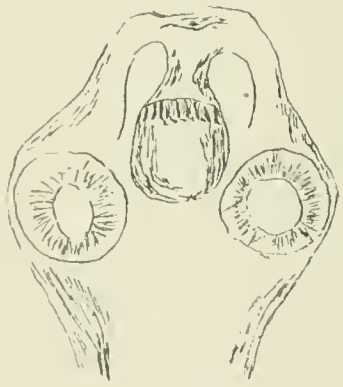
The specimen of tapeworm links sent me to-day, with request to confirm or correct your identification as *Tænia nana*, has been examined.

I am confident of the correctness of your diagnosis. The specimen is extremely rare, and its occurrence here should be reported for record. Very sincerely,

Allen J. Smith.

Case.—T. O'C., section foreman in G., H. & H. yards. Residence, Galveston; single; age thirty-five years; born in Ireland. Family history.—Father died at age of sixty-eight years; mother died at about the same age. Previous health of both parents good. Four brothers and four sisters living and in good health. Personal history.—Drinks beer and gets drunk now and then. Smokes tobacco. Previous residence.—Came from

Fig. 2.



Head of *Hymenolepis nana*, with retracted rostellum (x 100) (Leuckart).

Ireland to Sedalia, Mo., in 1879, passing through Boston. He lived at Sedalia eighteen months, working on the railroad tracks and in the yards there. From Sedalia he came to Texas, stopping first at Laredo, thence to Waco, Dallas, Longview, Palestine and San Antonio. He worked at Cleburne, Texas, four or five months during 1882, and at Houston most of 1883. From 1883 to 1891 he was working at Galveston or in that vicinity. In 1892 he worked on the Galveston jetties. He worked on the Santa Fe Railway, near Arcola, Texas, during 1893. In 1894 he was working on the Alta Loma pipe line, the line furnishing Galveston her water supply from artesian wells 18 miles away. Worked on City Railroad during 1895; after this he went to Houston for three years, thence back to Galveston in 1900 where he has since lived. During all of this time he says that his health was perfect. Previous diseases none. Present disease.—Two months before entering hospital, which was on Aug. 4, 1902, he felt feverish, especially during the mornings and had considerable headache at times. He would be well for two or three days and then get sick again. Appetite was good and bowels regular during this time. One week before consulting me (July 28, 1902), he was taken with a severe diarrhea. The bowels would move eight or ten times during the day and as often during the night. There was considerable pain in the belly about the umbilicus. He passed much blood and mucus; appetite poor. He complains now, Aug. 3, of pain in belly, diarrhea, and great weakness. Present condition.—He is a tall man, height 6 feet, weight about 150 pounds, rather sparely built, temperature 101° F., pulse 110, respiration 18. Heart and lungs normal. Liver and spleen a little enlarged. Some tenderness over stomach and abdomen. Some intestinal parasite was suspected and he was advised to enter the hospital, which he did Aug. 4, 1902. The blood examination for malarial parasites was negative. Aug. 5.—The patient passed a very restless night. The bowels moved about 20 times during the past twenty-four hours. The stools were examined by Dr. J. R. Elliott who reported finding the ova of some intestinal worm, probably *Tænia nana*. I ordered the following given:

℞ Olei resin Aspidii.....1 dram
Ext. Kamalæ Fld.....1 dram
Ext. of Krameriæ Fld.....½ dram

To be taken at 9 A.M., and followed by one ounce of castor oil.

Aug. 8, temperature normal and patient feeling well. He insists upon going out. March 22, 1903, I saw the patient to-day and he says that his health is fine. He has not been sick since leaving the hospital.

Historical.—The parasite was discovered by Bilharz in 1851 in the intestine of a young man who died of meningitis. The worm was found in great numbers. A description was given by Von Siebold and Bilharz a little later. Leuckhart, afterward gave a complete description from specimens given him by Bilharz. Four specimens of this tænia are found in the collection of worms in the College of the Faculty of Medicine, in Paris. They had been given to Dr. Davaine by Burguieres.

Hellich in 1885 obtained some of these worms in a child seven years old. This was the daughter of a barber. She was given male fern and passed a *Tænia solium*, a few *Oxyuris vermicularis*, and about 50 *Tænia nana*. Other doses of this drug were given and in five successive times she passed 250 of the worms. Leuckhart received some of these specimens and identified them as *Tænia nana*.

There are specimens to be found in the museum of Orfila said to have been given by Prof. Dokitch in Sept., 1885, secured while traveling in Servia.

In 1873 Spooner found a small worm in the United States which he thought to be *Tænia nana*. The specimens were given to the College of Physicians of Philadelphia. Leuckhart is disposed to think the specimen was *Tænia flavopunctata*. If this was *Tænia nana* then it was the first case occurring in North America.

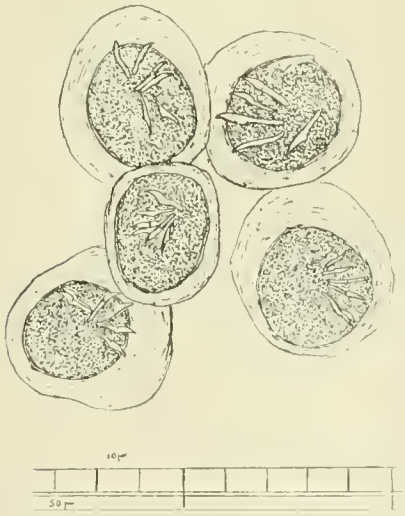
Geographical Distribution.—This tænia has been found in many parts of the world. Bilharz discovered the parasite in Cairo, Dr. Haley found the worm in a seven-year-old child in Belgrade.

Specimens were obtained from Servia in 1885. Spooner thinks he found the tænia in the United States at Philadelphia. Grassi says this is a very common parasite in Sicily. He secured specimens of the worm from two Sicilians. Ransom observed *Tænia nana* in England. It is known to exist in Lombardy (Grassi, Comini, etc.); Piedmont (Peroncito), Tuscany (Sonsino), and Sicily (Grassi and Calandruccio). Grassi found it in Marseilles, Zograph found it in Russia and Mortens in Germany. Lutz found it in two little girls in Brazil. Wernicke and Blanchard found the worm in the Argentine Republic.

My case evidently contracted the parasite here in the vicinity of Galveston. There were two men, working on the section with this man, who had diarrhea of the same character, but I was unable to secure feces for examination. I feel convinced, since finding *Tænia nana* in this man, that the other two were also infected.

Dr. Stiles writes me that he has recently found four cases in Georgia and one of his assistants has found another case in an asylum in Washington.

Fig. 3.



Ova of *Tænia nana* (from crushed ripe segment). Drawn by Dr. A. J. Smith (camera lucida).

The parasite is evidently much more widely distributed than we have heretofore thought.

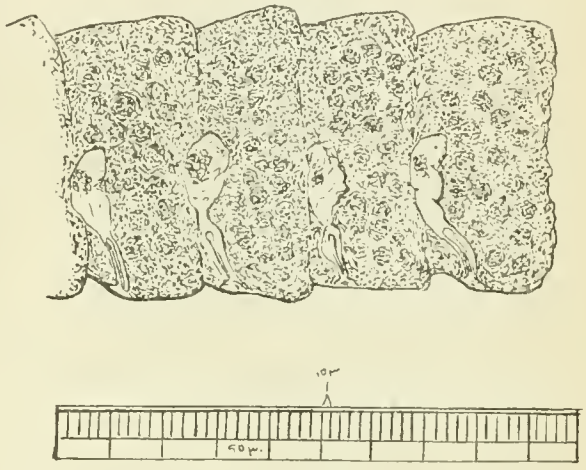
Generic and Specific Diagnoses.—Genus—*Hymenolepis* Weinland, 1858.

Generic Diagnosis—Dipylidiinæ: body small, filiform; head small, rostellum retractile, well developed and armed with a crown of 24 to 30 small hooklets; or rudimentary and unarmed; suckers usually unarmed. Neck long; lateral border of strobila has serrate appearance much like the toothed edge of a saw blade. Genital pore single, unilateral, on left margin. Testicles usually three to each segment, two on right, one on left side. Gravid segments transformed into a sac full of clear, round, or oblong eggs which are surrounded by three shells; internal shell occasionally with a small knoblike structure at each pole. Larva a cryptocyst or a staphylocyst.

Type Species.—Tænia flavopunctata (Hymenolepis diminuta).

Synonyms.—Hymenolepis Weinland, 1858; *Diplocanthus* Weinland, 1858 (not Agassiz, 18, fish); *Lepidotrias* Weinland, 1858; *Diplocanthus* Cohn, 1899 (misprint).

Fig. 4.



Segments of *Tænia nana*. Drawn by Dr. A. J. Smith (camera lucida).

For list of species and bibliography see Blanchard, 1891, Hist. zool. et med. des T'eniad 'es du genre *Hymenolepis,* Paris, 112 pp., 22 figs.

The Dwarf Tapeworm—Hymenolepis nana (Siebold, 1852; Blanchard, 1891).

Specific Diagnosis.—Hymenolepis strobila attains 10 to 40 mm. in length, and 0.5 to 0.9 mm. in breadth; composed of about 150 to 200 segments. Head subspherical, 0.25 to 0.33 mm. in diameter; rostellum thick retractile, 100 μ long, 80 to 90 μ broad; hooks 20 to 30 in number, 14 to 18 μ long, and arranged in a single row; suckers lobular, 90 to 105 μ (according to some authors to 200 μ) in diameter. Unsegmented neck quite long, not distinctly defined from head and about half as broad. Anterior proglottids very short, scarcely distinct; those following become gradually longer and broader, always remaining broader than long, attaining 0.14 to 0.30 mm. in length, by 0.41 to 0.92 mm. in breadth. Vitellogene gland globular. Only about 100 eggs found in gravid segments; eggs globular to oval; outer envelope 30 to 60 μ; inner envelope 16 to 28 μ, presenting at each pole a more or less conspicuous mammillate projection provided with filamentous appendages; onchosphere 16 to 22 μ by 18 to 20 μ in diameter; hooks of onchosphere 10 to 14 μ long.

Synonyms.—*Tænia nana* von Siebold, 1852 (not P. J. van Benden, 1861); *Tænia Ægyptiaca* Billharz, 1852; *Diplacanthus nanus* Weinland, 1858; *Tænia (Hymenolepis) nana* Leuckart, 1863; *Tænia murina* Dujardin (not Gmelin, 1789).

Description of Specimens.—Fig. 4 shows four segments in which it is seen that the genital opening is on the same side as the segments. These segments are almost far enough toward the tail

Fig. 5.

Egg of *Hymenolepis nana*, drawn by Brayton H. Ransom, Division of Zoology, Hygienic Laboratory, U. S. Public Health and Marine-Hospital Service.

end to contain mature ova, as one is seen at *a*. Owing to the specimens being in a poor state of preservation no minute observations could be made, but one can make out the remnants of the male genital organs which are seen in the drawing. The immature ova have filled the uterus and make it conform to the shape of the segments.

The Ova.—The mature segments which contain from 20 to 30 ova were carefully studied. When the ova are first encountered Fig. 3 gives a good idea of their appearance, the hooklets of the embryos being seen without any difficulty at all. The interval between the outer and inner shells is seen upon very close observation to be made up of a substance which is quite clear, but running through it and apparently coming from what may be termed the poles are a number of filaments. These are made out with great difficulty. Fig. 5 shows this quite well. Lying within the inner shell is the embryo which has six hooklets in most cases, but quite a number of ova were seen

Fig. 6.

Egg of *Hymenolepis nana* (38 x 31μ) (original).

having only five due probably to their being obscured by the others. The average for a number of measurements was: outer shell 40 by 31.9 μ; the inner shell 29.2 by 20.6 μ. The hooklets which are shown in the ova measured from 10 to 13μ in length. Fig. 7 shows a hooklet enlarged.

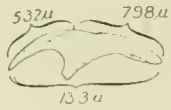
Pathological Significance.—It is not known definitely how the infection is gotten, but from the great number found in the intestines it has been suggested that the ova are taken into the stomach with water or vegetables. It is not my aim to discuss this phase of the subject here but it is quite desirable that some one discover the means of infection. This parasite has been found in large numbers in the small intestine and they have been known to pass through the ileocecal valve. Thousands of these worms may inhabit a single intestine.

The symptoms may be divided into two main groups: (1) Intestinal; (2) nervous.

1. *Intestinal.*—From the irritation of the mucous membrane of the intestine there is apt to be loss of appetite, diarrhea, alternating with constipation, colicky pains in the abdomen and stomach, and great nausea.

2. *Nervous.*—The *nervous symptoms* are headache, disturbance of vision, dizziness, melancholia and in many cases attacks of epilepsy. Where only a few parasites are present there may be no symptoms at all, but if the worms are numerous the symptoms are apt to be of a severe character. Anemia follows later with its train of symptoms. One is somewhat at a loss to account for such severe symptoms where so few worms are present, but, as they rapidly disappear upon ridding the patient of the worms, the parasite must be responsible for them. They must be caused by

Fig. 7.



Hook from embryo (enlarged) (original).

the combined irritation to the intestine and the liberation of toxines. The predominant symptoms in my case were obstinate diarrhea, cramps in the abdomen and limbs, headache, and great weakness. One dose of the anthelmintic completely relieved him.

Diagnosis.—The diagnosis is readily made by examination of the stools microscopically. The ova are easily recognized.

Treatment.—Male fern is the best drug to use for their expulsion. One dram of the oleoresin of male fern, taken after a fast, and followed by an active purge is usually all that is needed. Thymol and santonin are said to be of no value.

I am very much indebted to Dr. Charles W. Stiles, chief of Division of Zoology, for his identification of the parasite and for the generic and specific diagnosis and for his aid in the study of the ova and the segments; and to Dr. A. J. Smith for his assistance in the preparation of drawings and his assistance in many ways. Also to Mr. B. H. Ransom, Washington City, for his excellent drawing of the egg.

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TWO ADVANTAGEOUS PROCEDURES IN ANESTHESIA WORK: REPORT OF CASES.

BY VICTOR C. PEDERSEN, A.M., M.D.,
OF NEW YORK.

IN presenting the following two procedures in anesthesia work, no claim to originality is made, excepting such as may be concerned in the facts that the author never has seen them described before and never has seen them employed previously, but had to work them out for himself in the course of active experience as a specialist in anesthesia. They are published only with the hope that some one who has not learned of them before may profit by them.

The first procedure is an advantageous means of administration of the nitrous oxide-ether sequence. Strictly speaking, it is a new sequence in which the series is nitrous oxide, then nitrous oxide and ether combined and finally ether alone. The purposes of the technic are to avoid producing any gas cyanosis, to induce ether narcosis very slowly without exciting any reflexes, such as coughing, and finally to obtain a full degree of ether narcosis with the utmost safety and convenience to the patient.

A fourth result, which is incidental rather than essential, is great economy of gas, since by this method the average patient goes completely under this sequence of these anesthetics with a half-gallon instead of a full gallon of gas.

The details of applying the technic are as follows, so far as the Bennett apparatus, which is the one I prefer, is concerned. Exactly similar stages of the procedure are possible with any of the other good ether-cones now on the market.

First.—The gas-bag is filled to its half-capacity for the average patient, or to a fuller degree if there be any reason to suspect necessity for using a larger quantity. The ether chamber is as usual charged with ether, from a half-ounce to a full ounce in quantity, likewise in accordance with the characteristics of the patient. The assembled cone is now placed upon the patient's face and the rubber face-cushion is adjusted to fit as well as possible. With the valves of the gas-chamber open, the patient is requested to breathe; and as soon as he has shown himself to understand what is required of him, and the face-piece has been seen to fit air-tight, the gas is turned on.

Second.—After from two to four full respirations have been taken with the expiration-valve of the gas-chamber open, this is closed so that "rebreathing" is therefore initiated.

Third.—The patient is now allowed to take from two to four respirations in this manner, at the end of which he is usually sufficiently under gas-narcosis for the next step, although as a rule not in the smallest degree cyanosed by the gas.

Fourth.—This step consists in very slowly turning on the ether, at a rate so deliberate that it requires from four to eight minutes to pass from *"air"* to full *"ether." During this stage it will be noticed the patient is receiving nitrous oxide and ether together thus constituting the second anesthetic combination of the sequence already outlined.*

Fifth.—While this combination is being administered the quantity of ether in the ether-chamber is judiciously replenished and, if necessary, likewise increased, so that usually at the end of the time stated the patient has begun full, regular and stertorous ether-respiration. This degree of narcosis is commonly reached without any reflexes or disturbances whatever. *Cyanosis if it appears at all, is not of the blue-gray hue of gas-, but of the reddish-blue image of ether cyanosis.*

Sixth.—If there is any delay in the appearance of the normal ether respiration, I continue the nitrous oxide ether combination of the series until it does develop. The additional time required, in such cases, for the induction of full ether-narcosis is usually very brief.

Seventh.—When all the symptoms of complete ether-anesthesia are present, the gas-chamber and bag are removed and the ether-bag is attached to the ether-chamber and the patient is ready for operation.

Comments and Results in Practice.—I have now had perhaps 150 patients in private and in public practice in my official position at the Roosevelt and at Polyclinic hospitals, whom I have anesthetized in precisely this manner. Of these 150 only one has shown the usual *gas-cyanosis* in more than a very moderate degree, but he was alcoholic and took the anesthetic only fairly well throughout, showing, as most of these subjects do, great readiness to become cyanotic under any anesthetic.

I have likewise had only two or three patients who coughed at all during the introduction of the ether. Only one patient was able, after convalescence, to tell me that she perceived the odor of the ether, of which I have great doubts, founded on her behavior in going under. Since applying this method, the majority of my patients have had very much less mucus in the nose, throat and trachea and the majority of them have shown distinctly less after vomiting. The benefits of this mode of administration lie in the fact that the induction of the ether narcosis is much more deliberate, regular and steady and that, therefore, the concentration of the fumes is more carefully determined with reference to each patient's peculiarity; which is an exceedingly important detail.

When I was taught as a hospital interne, the gas-ether sequence of anesthesia, the method practised was to induce profound gas-anesthesia to the point of distinct cyanosis and then to turn on the ether more or less rapidly before the patient had time to recover from the gas. The result was a great advance over the old mode, but still had the objection of very frequently causing coughing, bronchorrhea and ether-excitement, including considerable muscular resistance simply because the ether was necessarily concentrated. Of my series of cases, very few indeed

have shown muscular resistance; and such as have, did so to a very insignificant degree, with the exception of one very alcoholic subject (the same individual just spoken of as having shown more or less gas-cyanosis).

"I feel that in presenting this rather simple and sensible procedure to those who are working in the field of anesthesia, I have offered a very valuable suggestion, since the experience I have had with it seems to be a criterion.

Reports of Cases.—It seems well to outline several cases, which illustrate the satisfactory manner in which this technic operates in actual practice. These histories are copies of notes kept of many of my cases. The reports of the postoperative conditions were very kindly made by the nurses, at the permission of the operating surgeons in great courtesy, which is sincerely appreciated, or by the operators themselves.

Case I. D.—*History*: Male; white; seventy-five years old; retired merchant; no previous anesthesia; no stigmata of alcoholism; about five feet eight inches tall; weight, 110 pounds; of fair development for his age; of poor nutrition; of pale complexion and in feeble general health.

Physical Examination Prior to the Anesthesia.—(1) *Circulatory System:* Small intermittent pulse, 80 beats to the minute; general arteriosclerosis; veins negative; considerable pallor and anemia. (2) *Respiratory System:* Atrophic senile rhinitis; chronic nasopharyngitis; lungs normal to auscultation in front and on the sides, age considered; breath-sounds slightly puerile; expiration prolonged; no cough; stomach empty; rectum loaded; urine not reported; no ante-operative drugs; slight fear.

Pathological Condition.—Obliterating endarteritis with secondary gangrene of one toe. *Operator*, Dr. John A. Bodine. *Operation.*—Amputation of the toe; duration, twelve minutes: Bennett inhaler, using a half-gallon of gas with $1\frac{1}{2}$ ounces of ether net, measured; no anesthesia excitement; dorsal posture; complete relaxation; no mucus; very slight sweating; no laryngeal spasm; moderate exposure during operation; no shock; slightest hemorrhage. *Recovery.*—No after-vomiting; within eight minutes conjunctivæ sensible and conscious within thirty minutes so as to speak; no postoperative stimulants.

During the anesthesia his pulse varied between 80 and 90 and was of better character than previously. His respiration was 36 and normal; his conjunctival reflex disappeared completely. The reflex of his pupil to light was constantly present and the size of the pupil was moderate in a room of only fair illumination. No movements whatever were made excepting a few swallows early in the anesthesia. His color was better during the anesthesia than either before or after. His general condition remained excellent.

The *technic* already described was followed exactly in inducing the anesthesia; only two respirations were allowed with the expiration-valve of the gas-chamber open, and only two more with it closed, after which the ether was begun. Within four minutes from the beginning the conjunctival reflex was sluggish and stertor was appearing. In two minutes after this time the operation was begun.

The nurse at the permission of the operator, reported the next day by letter, that the first twenty-four hours passed without incident and that during this time he had passed his urine voluntarily. No examination of the urine postoperatively was reported.

Case II. S.—*History:* Male; white; forty-five years old; merchant; no previous anesthesia; moderate regular alcoholic habit; five feet six inches tall; weight, 210 pounds; of excellent muscular development, nutrition and general health; complexion ruddy.

Physical Examination.—Entirely negative excepting the urine which contained blood, pus and a trace of albumin due to the blood; slight cystitis; no anteoperative drugs; no fear. *Operator*, Dr. E. L. Keyes. *Operation.*—Lithotripsy; duration twenty-five minutes; Bennett inhaler; two-thirds of a gallon of gas and $5\frac{1}{8}$ ounces of ether were used; no anesthetic excitement; dorsal posture; complete relaxation; moderate mucus; very great sweating; no laryngeal spasm; very moderate hemorrhage, gentle operative manipulation; no exposure during operation; no shock; no postoperative stimulants.

During the operation his pulse remained constant at 84; his respiration varied from 30 to 36; his conjunctival reflex was abolished. The reaction of the pupil to light was active and the size of the pupil small in a very brightly illuminated room. He moved very slightly early in the operation when the instrument was first introduced, but was quieted by increasing the quantity of ether. His color was bluish for a time, due to swelling of the tongue and was corrected by pulling the tongue forward with the forceps. No gas-cyanosis occurred. No excitement in going under of any description.

Recovery.—In three minutes his conjunctival reflex was present and in six minutes he vomited once; he vomited again on the way to his room, and once after arrival there. The nurse reported by postal three days afterward that his recovery from the anesthetic was perfect. The quantity of ether used was due to the facts of his alcoholic habits in his club-life, of his great physical size and of the amount of air necessary through the upper valve in order to keep his color good Urine normal in a few days.

Case III. G.—*History:* Female; white; twenty-seven years old; housewife; previous anesthesia, none; moderate regular alcoholic habit; five feet six inches tall; heavy build; weight, 185 pounds; excellent development, nutrition and general health; ruddy complexion.

Physical examination prior to operation negative; no drugs given; very moderate fear. *Operator*, Dr. J. D. Nagel. *Operation.*—Curetting, dilatation and incision of the internal os uteri for sterility, secondary to stenosis; duration, sixteen

minutes; Bennett inhaler; a half-gallon of gas and 2¾ ounces of ether, measured; dorsal lithotomy posture; absolute relaxation; very moderate mucus; moderate sweating; usual exposure during the operation. Three respirations were allowed with the expiration-valve open, which was then closed and the ether introduced. After a few respirations roars of true laughter set in, due to the gas, but not associated with any gas-cyanosis whatever, which lasted until the ether stertor appeared; that is, about two minutes. During the laughter the patient shook her whole body, especially the limbs, but was not muscularly rigid, nor at all combative; no restraint. Deep anesthesia was present in about three and one-half minutes and was accompanied by very moderate cyanosis which disappeared as soon as the upper air-valve was opened. It had none of the gray-blue characters of gas-cyanosis. The upper air-valve was kept open and no further cyanosis appeared. Some laryngeal spasm in the form of inspiratory stridor was present during the first few minutes but rapidly disappeared.

During the operation the behavior of the patient was entirely without incident. After removal of the cone hiccoughs began within two minutes and vomiting associated with hysterical weeping in six minutes. The nurse reported by letter in about a week that after returning to the ward little or no vomiting appeared and that recovery from the anesthesia was complete and uneventful. No report of the postoperative urine. During the operation the patient's respiration reached 50 to the minute varying between that and 36. Pulse normal at about 100. There was no postoperative medication required.

Case IV. S. L. F.—*History:* Male; white; forty-five years old; merchant by occupation; no previous general anesthesia; very pronounced alcoholic habit, consuming a quart of whisky and other forms of alcohol in addition each day at the time of operation, as acknowledged by his wife.

Physical Examination.—Five feet six inches; medium build; poor development and nutrition, pale complexion with marked jaundice; heart, lungs and kidneys pronounced healthy by family physician, who requested me not to investigate them less the patient's irritable disposition be excited. General arteriosclerosis; no cough; stomach and rectum empty. No drugs immediately before operation.

Pathological Condition.—Atrophic cirrhosis of the liver with secondary ascites of very marked degree. Two days prior to the operation, twenty-five pounds of fluid were aspirated. On the day of the operation the abdomen was enormously distended and tense. *Operator:* Dr. R. T. Morris. *Operation:* Talma's procedure to establish anastomotic circulation between the liver and omentum and the wall of the abdomen. Bennett's inhaler; 6¾ ounces of ether (measured), preceded by one gallon of gas during a total administration of thirty-eight minutes; dorsal posture; absolute relaxation. Slight mucus; very moderate hemorrhage in the wound; profuse sweating; rapid general manipulation; moderate exposure during the work. No laryngeal spasm. *Recovery:* in ten minutes conjunctival reflex had returned and in one hour the patient was thoroughly conscious and able to converse rationally. About one week after the operation Dr. Morris informed me that his recovery up to that moment had been without incident. There was very little after-vomiting and only a very mild degree of shock. No postoperative stimulants.

The *anesthesia* was exceedingly interesting. Realizing that I was dealing with a very undesirable case, I took a gallon of gas, allowing the patient to expire half of it before compelling rebreathing. The ether was then very slowly turned in so that I consumed ten minutes in getting the patient under. There was no struggling whatever and no reflexes, cyanosis or other undesirable features until without warning about twelve minutes after the first gas was administered the patient's nose and throat suddenly filled with blood and mucus and deep cyanosis suddenly appeared. Breathing stopped absolutely and I thought the patient was dead of cardiac failure. During the month preceding the operation he had had at least two slight marked epistaxes. The cause of his suspended breathing appeared to be a sudden filling of the upper air passages with blood and mucus, probably from this source. I immediately opened his mouth with a gag, drew his tongue forward, swabbed out the passage and summoned Dr. Morris to the room, requesting him to institute artificial respiration while I kept the upper air passages free. I explored the larynx with my finger and was pleased to find that it was clear. Perhaps a half dozen manipulations in artificial respiration were made when the patient began to breathe again. After a few minutes his breathing was normal and the anesthetic was resumed with the mouth gag in place and the tongue pulled forward. At the end of the eighteen minutes from the outset the operation was begun and as soon as the fluid from the abdomen was evacuated his pulse, which had been 108, suddenly rose to 160. His respiration again became faulty and another epistaxis occurred, more moderate, however, than the first. It required only a swabbing out of the throat to clear the difficulty away. In a minute or two the pulse and respiration improved markedly so that they were much better than at any previous moment, and thus they continued until the end of the operation. In fact, the great improvement in this patient's condition suggested to both Dr. Morris and to myself, the advisability of evacuating the abdomen of ascitic fluid a few hours before beginning the anesthetic.

This case is mentioned to show how this new method of administering gas and ether will work even with individuals who otherwise would

present a high degree of furious excitement while going under. All things considered, his performance under the anesthetic was as good as could possibly be expected. Certainly the beginning of the narcosis was as free from trouble as possible, aside from the obstruction of his breathing with mucus and blood, which in all human likelihood depended more upon his disease and the general interference with circulation and respiration it caused than upon anything else.

The quantity of ether required, 6¾ ounces in thirty-eight minutes in administration, was really very small indeed, when one considers the quantity of alcohol in various forms the patient was consuming each day. The only ether excitement he showed was during the first twenty minutes of the recovery when he was in a state of talkativeness and profanity, but at the end of an hour was quite himself again.

The second valuable procedure in anesthesia work implied in the title, is that of the *new position of the patient for operations upon the kidney*. The usual manner of placing these patients upon an Edebohls' bag involves the crowding of the root of the neck and face more or less closely against the top of the table. I have seen cases in which this was present in so marked a degree, that it was impossible to move the head of the subject about, excepting with both hands and force enough to practically life the shoulders from the table. I have also seen the pressure so severe that the lower jaw was held rigid and pushed considerably out of its position toward the opposite side of the face.

I am convinced that such interference with the patients' air-passages accounts far more for the bad manner in which they take the anesthetic than does the anesthetic or the surgical operation itself.

One of the fundamental principles of good anesthesia work is that the head and neck of the patient shall be as fully under the control of the anesthetist as possible. The position of these kidney cases, as just outlined, totally deprives the anesthetist of this most important aid in securing a satisfactory anesthesia. It was with the purpose of correcting the difficulty that I have come upon and now invariably adopt the following very simple plan. I have had, since it first occurred to my mind, a sufficient number of cases to prove absolutely that it works perfectly and is the proper solution of the difficulty.

The steps of the method are simply these. After the patient is suitably narcotized in the dorsal position, he is transferred to the operating table, turned upon his side, and the Edebohls' bag is placed into its position. The shoulders are then raised from the table and rested upon a sand-bag reaching from shoulder to shoulder, oval in cross section, about four inches in its longest diameter and reasonably soft. This brings the pressure of the chest upon the shoulders and upper sternum, and not, as heretofore, upon the base of the neck. When the shoulders are thus elevated free of the table the head may be moved in any direction whatever and the jaw of the patient is absolutely under the control of the anesthetist.

The technic has one objection which may, however, be readily corrected, as I will presently state. It is that the elevation of the upper part of the chest upon the sand-bag may narrow the iliocostal space and thus decrease the field of operation. My method of meeting this difficulty, is to place other sand-bags under the Edebohls' bag, thus securing a proper flexion and torsion of the chest upon the abdomen. Of the series of cases to which I have applied this technic all have followed an uneventful anesthesia with a sole exception which should not properly be mentioned with a description of the technic because I feel there is no relation between them. In this example the surgeon did not follow my suggestion to elevate the Edebohls' bag upon other sand-bags and therefore operated in a slightly restricted iliocostal space. It was on this account that in delivering the kidney his manipulations were so severe that not only did he contuse the organ somewhat but also brought about a reflex suspension of respiration which occurred in the presence of a perfectly good color and no circulatory symptoms aside from slight acceleration of the pulse. The operation was suspended, and in a moment or two without any interference whatever with the patient, respiration was resumed.

When one considers that kidney-operations are perhaps among the most dangerous attempted and that it frequently matters very little what anesthetic is employed, because any is apt to be followed by some kidney-disturbance in virtue of the other attack upon these organs, it becomes of supreme importance to so place the patient that all possible disadvantages of the anesthetist are removed.

In my experience I have proved to my entire satisfaction that this arrangement of the patient suits the elements of the proposition perfectly. Its importance lies in the fact that one never may state in advance how a given patient will accept a certain anesthetic during the operation and during the convalescence. Some authorities state that chloroform is better than ether for renal subjects, while others, on the contrary, say that while ether very frequently irritates the kidneys the character of its disturbance is usually functional, immaterial and temporary. Chloroform by these authorities is perhaps with great truth stated to be exceedingly deadly whenever it meets a kidney susceptible to it in that its effect is profound and almost organic.

I feel therefore that too much stress cannot be laid on the importance of securing freedom of the head and neck as a most important aid to the narcotizer in giving either of these anesthetics or any other anesthetic as uneventfully as the idiosyncrasy of his patient will permit.

16 West Sixty-first Street.

LABORATORY AIDS TO DIAGNOSIS FOR THE GENERAL PRACTITIONER.*

BY VICTOR A. ROBERTSON, M.D.,
OF BROOKLYN, N. Y.

To-day the medical profession, as well as humanity at large, is greatly indebted to the many achievements and triumphs of the modern well equipped and scientific laboratory.

Anatomical laboratories for teaching and investigation have existed almost from the beginning of medical progress, but the clinical laboratory of the present time is a product of only the last thirty years. As a factor in medical education its value can hardly be overestimated. Cases of disease are now studied with the aid of the microscopist and the bacteriologist as well as the clinician. Anatomical and hygienic laboratories deal frequently with problems having no direct bearing on the practical side of medicine, but the clinical laboratory brings us in close touch with the patient and pathological materials derived from living subjects.

It is only within recent years that opportunities have been given in our medical schools, for original investigation in morbid processes, and many of our older practitioners can remember the times when advantages for such research could only be had abroad, the birthplace of these laboratories. Now their usefulness being recognized, every well-equipped medical school is provided with its clinical, physiological and chemical laboratories. There can be no dispute as to the profound influence exerted upon practical medicine in diagnosis and treatment by laboratory methods of investigation. These methods are not to be used to the exclusion of the physical examination, history, temperature, pulse, etc., but as affording a valuable means of adding to our information in any given case, and must always be taken in conjunction with all the bedside methods of diagnosis of the clinician. We must not relax in physical methods of diagnosis or fail to remain acute observers of all the objective signs of disease, and give all the findings in any given case due consideration. These aids to precision in diagnosis have been neglected to a large extent by the general practitioner, except to those who are fortunate enough to be hospital visitants.

This neglect has been due, in some cases, to indifference or disbelief as to the practical value of these methods, in others to a mistaken idea that a large amount of technical skill is required, that much time is necessary, and expensive apparatus is essential.

It is the purpose of this paper to encourage the general practitioner to conduct these examinations himself and he will soon appreciate their immense assistance in his professional work. Every practitioner is morally bound to use every means at his disposal to arrive at exactitude and completeness in diagnosis and no man should be too busy to make daily examinations of blood, sputum, urine, gastric juice, etc. If professional duties prevent, he should avail himself of the services of an assistant qualified in laboratory methods. If the clinician could combine with his experience, mature judgment and skill in physical examination, a knowledge of laboratory technic, diagnostic errors would occur less frequently and much less discredit would be placed at the door of the laboratory diagnostician. Many unjust criticisms have been made of laboratory diagnoses, because the clinician, through his ignorance of laboratory methods has sent his material for examination contaminated to such a degree that no successful investigation could be made, or the data furnished has been insufficient. It must be understood that the microscope only reveals evidence that is complementary to the physical signs and symptoms. It is only one factor that must be correlated with other sources of information before a definite conclusion can be reached.

The general practitioner should remember that scientific completeness is not required of him in this work. It goes of course, without saying, that the intricate details of original research are too engrossing and demand more time and technical skill than a busy practitioner can afford. It does not require, however, but a moderate knowledge of bacteriological methods to discover the commoner pathogenic organisms that he meets with in diseased processes almost daily.

A laboratory could be fitted up at moderate expense in a room separate from the office, where the necessary quietness could be obtained, a hall room, provided with water and gas, would answer admirably. The most expensive part of the equipment would be a good microscope with ⅔″ and ⅙″ dry lenses and $^1/_{12}$″ oil immersion lens, and mechanical stage. A table and some shelves and racks for holding the necessary glassware, chemical reagents and staining solutions which could be modest at first and added to from time to time as occasion required. An Esbach albuminometer, a Doremus ureometer, Einhorn's saccharometer, A Thoma-Zeiss hematocytometer, Dare's hemaglobinometer or Tallquist's hemoglobin scale are necessaries. An incubator, while not perhaps an essential part of the equipment at first, would soon be willingly obtained by an enthusiastic worker. An hour or two spent daily in this laboratory would be an agreeable relaxation from engrossing professional duties.

Some time ago an article appeared in one of our leading medical journals, written by Dr. E. L. Trudeau,* of Saranac Lake, in which he narrated the great difficulties he encountered in laboratory work in his early professional days in the Adirondacks. One can only admire his persistency in adhering to scientific methods of diagnosis in the face of the discouraging and limited facilities at his command in that rigorous climate. His efforts have been crowned with deserved success, as may be seen in the admirably equipped and well-organized laboratory that bears his name in Saranac Lake, N. Y.

* Read at the Annual Meeting of the New York State Medical Association, October 21, 1903.

* See MEDICAL NEWS, Oct. 24, 1903.

In this city we have at hand, at convenient stations, a suitable culture medium for all the commoner pathogenic organisms. The writer refers to the Löffler blood serum mixture, in test tubes, furnished by the Health Board. These can be carried to the bedside, hospital, dispensary and autopsy table for inoculation.

The applicability of these methods in daily practice may be shown by the following: A case of continued fever with ill-defined symptoms presents itself for diagnosis.

Osler states that all fevers extending over several days in this latitude are apt to be one of three things, tuberculosis, typhoid fever or malaria. If cough is present and a specimen of the sputa can be obtained, it is only a matter of a few moments to pick up one of the small cheesy masses met with if the sputum is tuberculous, make a smear, fix it by flaming, stain, decolorize, use contrast stain, dry, and examine, and tubercle bacilli, if found, will make the diagnosis clear. It is a matter of immense importance to make an early diagnosis of pulmonary tuberculosis before the lung has become extensively invaded, and our patient has become a source of infection to others, as our only hope of controlling this disease is in its early and prompt treatment, climatic or otherwise. Tubercle bacilli, according to Musser, are frequently found when the physical signs and symptoms would only excite a suspicion of tuberculous infection. We must not wait till our patient has become emaciated to the last degree and comes presenting signs of a cavity, with consequent fever, night-sweats and cough. Microscopical examination of the sputum, while affording confirmatory evidence of the nature of the infection in such a case, is hardly to be considered necessary.

It is also worth remembering in this connection, as illustrating the value of regular systematic examinations of the sputa of all cases of cough extending over a few weeks, that occasionally cases of tuberculosis are met with in the upper air passages, before there is any infection of the lungs discoverable by any of our methods of examination, save the microscope. The writer well remembers a case of suspected syphilis from the situation and character of ulcers on fauces and pharynx, that only a microscopical examination of the sputum afforded the clue to the correct diagnosis of tuberculosis. In this case it was some months later before any pulmonary signs of involvement could be discovered. If the examination of the sputum is negative, recourse can be had to a blood examination when either the plasmodium of malaria is discovered, or the characteristic Widal serum reaction of typhoid fever is obtained.

The Widal reaction can be made by the general practitioner if he can gain access to a laboratory for a fresh, living broth culture of the typhoid bacillus. If this cannot be obtained, a formalized dead culture may be employed. Ehrlich's diazo reaction, although present in other diseases, is of much diagnostic value, especially when found in conjunction with negative blood and sputa examinations.

The general practitioner should familiarize himself with the recent advances made in the pathology of the blood. Blood examinations, as a method of diagnosis and rational treatment, whether medical or surgical, have, of late years, been used more frequently and have demonstrated their value beyond dispute. By hemanalysis, in various morbid conditions, we can discover deviations from the normal in the number, size, shape, and color of the red cells, the presence of nucleated red cells, an increase or decrease of certain elements of the white blood corpuscles and the presence of cell bodies not usually found in the peripheral blood. Also variations in the amount of hemoglobin and finally the presence of parasites and bacteria in the cells and in the blood stream. These pathological changes in the blood bear definite relations to various diseases that could not be distinguished by any other methods of diagnosis. Many of the anemias cannot be differentiated without a blood examination, as the pallor, symptoms and physical signs may be identical. The value of any form of treatment, in these conditions can also be obtained by systematic hemanalysis.

Simon, in a recent paper, has emphasized the necessity of examining the blood in suspected cases of lead poisoning. In 20 persons exposed to the action of lead, whose blood he examined, two only presented active symptoms, such as lead colic and wrist drop, three others had indefinite colicky pains some years before, and three complained of wrist weakness, the remaining 12 gave no signs of lead intoxication. All of these cases, however, showed the presence of basophilic granules in the red blood cells. Even in light exposures Simon found these granules, and their number was directly proportionate to the severity of the intoxication. An increase of these degenerated cells was found to precede the appearance of clinical symptoms of poisoning. A regular examination of the blood of lead workers would suggest appropriate treatment before profound intoxication occurred.

Basophilic degeneration is of diagnostic importance in all conditions in which hemolytic poisons are operating in the body and in pernicious anemia are an indicator of the severity of the disease. It is also found in malarial and cancerous cachexias and in various septic conditions.

Leucocytosis.—The phenomenon in the circulating blood known as leucocytosis, when persistent and consisting of an increase of the white blood cells, known as the polymorphonuclears, is a pathological condition. It occurs in many infections and is of great diagnostic value. In all morbid processes due to pyogenic organisms such as appendicitis, abscesses, osteomyelitis, pyosalpinx and inflammation of viscera and serous membranes it is marked and constant. Its absence in certain affections in which we would naturally expect it to occur is from a diagnostic

standpoint an important symptom. It does not occur in uncomplicated typhoid. Simon maintains that if present in a suspected case of enteric fever it is more than probable our diagnosis is wrong or some complication exists. It is absent in malaria, most cases of influenza, measles and tuberculosis, unassociated with a secondary pus infection. Its diagnostic value is seen in the consideration of cases which simulate either typhoid fever or appendicitis. A blood count enables us to differentiate. If found during the course of typhoid fever it may give us warning of an impending perforation and indicate operation and the consequent saving of our patient's life.

According to Simon, the number of leucocytes in any acute infection is directly in proportion to the intensity of the infection, and the resisting powers of the individual affected. Where no leucocyte increase occurs in a virulent infection it would indicate a lowered resisting power of the individual and be of grave prognostic import. Death from pneumonia almost invariably occurs when this phenomenon does not develop; the exception only being found in the mild infections in which it is not present.

Dr. Thomas R. Brown, of the Johns Hopkins University, has recently answered the criticisms of Dr. Deaver and others as to the practical value of this method of diagnosis in surgery. He considers its presence or absence as determining whether the surgeon in any given case is dealing with an inflamed appendix, or merely some hysterical condition, or with a floating kidney, a biliary or renal calculus. It serves as a guide to the severity of the infection; when the count is above 12,000 or 20,000, an operation is imperatively demanded; if below, the observer can wait, and by further systematic counting, determine whether the case is going on to recovery or perforation is impending. Dr. Brown further believes that no operation should be undertaken without a blood count and if a severe infection is found unassociated with a corresponding degree of leucocytosis, operative measures will be useless.

The iodine staining reaction of the leucocytes is found in many cases of toxemia and is generally associated with a leucocytosis. It is of value in the diagnosis of septic conditions and when present in a marked degree indicates a profound intoxication, and if unaccompanied with a leucocytosis would be a sign of grave prognostic import and would contraindicate extensive operative interference in pus cases. An increase of the eosinophilic leucocytes in the circulation, is found in many pathological conditions. In bronchial asthma, they are increased 10 to 20 per cent. and thus serve as a means of differentiation from cardiac and renal asthma in which they are absent.

Dr. T. R. Brown was the first to observe this phenomenon in the acute stage of trichinosis, and in the first series of cases he reported, the eosinophiles varied from 42 to 68 per cent. of all the white blood corpuscles present—an enormous increase. Fever, gastro-intestinal disturbance, diarrhea, and muscular pain and tenderness following the ingestion of raw ham, pork or sausage, when associated with marked eosinophilia should excite a suspicion of trichinosis and a piece of the shoulder or calf muscle should be removed and examined for trichinæ.

Malaria.—Many practitioners are in the habit of calling all diseases accompanied with a periodicity in the symptoms malarial, but a blood examination for the parasites in many cases would show their absence. The diagnosis of malaria covers a multitude of diagnostic errors and should never be based on the clinical symptoms alone, as the initial chills of tuberculous and pus infection have been mistaken for it.

Typical malarial intermittents are readily diagnosed, but in the atypical forms and more especially in the pernicious varieties of infection, serious errors in diagnosis may occur. In the late Spanish War most of the cases of fever proved to be typhoid, and had blood examinations been made of the infected soldiers in the Western and Southern camps the mistake of confounding this disease with malaria would not have happened. A clinical diagnosis should, in every instance, be confirmed by an examination of the blood, which may be tedious if the parasites are not abundant, but if the disease is malarial, they will be surely found; it also determines the *type* of infection present, which is of value in prognosis and treatment. Both Cabot and Ewing state that the examination of the fresh blood is the readiest method of discovering the organisms, and this is best done just before the expected chill when they have reached their greatest size. This method takes but a short time and is applicable to the bedside, office or dispensary and shows the ameboid movements of the pigmented intracorpuscular forms of the parasites, with the active rapid motion of the pigment granules, together with any phagocytosis on the part of the white blood cells that may be taking place, also any of the actively motile flagellating bodies, if present, can be recognized. Its limitations have been found by Ewing to be in the study of the early small unpigmented forms, these being more readily found in the stained smears. Stained blood films, show us better than the fresh specimens the minute structure of the parasites and can be kept for reference. Several methods of staining can be used, as the organisms take readily all the basic aniline dyes. Wright's stain, described in January (1902) number of the *Journal of Medical Research*, has been found by the writer to be of great value in staining the parasites as well as the blood cells. It is durable and improves on keeping, the writer has modified this stain somewhat, by using a saturated unfiltered solution, which gives better results in his opinion.

Atypical cases of malarial infection occur more frequently in the estivo-autumnal than in the tertian types. Masked malaria, in which the symptoms are obscured by other complicating diseases, and latent malarias, which exist without

producing any appreciable symptoms, but in which the parasites can be demonstrated in the blood, are of this type. In some cases the temperature may be little above normal or even subnormal, although the infection is a grave one.

This emphasizes the importance of routine blood examinations in individuals coming from known infected districts, as Dr. Craig, U. S. Army Surgeon, stationed at San Francisco, in a recent work on estivo-autumnal fevers, states he found large numbers of parasites in the blood of soldiers returning from the Philippines with few or no symptoms present. In the masked forms, symptoms referable to other infections such as diarrhea, acute and chronic dysentery, pneumonia, typhoid, hepatic abscess, pulmonary tuberculosis, chronic gastritis, melancholia, insanity and rheumatism were present.

Dr. Craig gives the history of a case of pernicious malaria of this tropical type in a young girl not away from San Francisco in over two years. He considered the infection might have taken place from a mosquito that had imbibed the blood of a soldier from the Philippines, with the disease, and that there is grave danger of severe malarial types of infection becoming endemic in any locality in which there are large numbers of infected subjects with tropical malaria, provided the ubiquitous *Anopheles* mosquito is present.

Malaria in children rarely follows a typical course, but occurs in masked and irregular forms, which present symptoms of fever, headache, drowsiness, vomiting and constipation, which may excite a suspicion of meningitis, or cough, rapid breathing and râles may simulate a pneumonia. The quotidian form is most common, but there is seldom a complete attack of chill, fever and sweat, the chill often being absent, or if present, so slight as to be overlooked. In the cases observed by the writer, gastro-intestinal disturbances were the most common symptoms; some slight fever, headache and drowsiness were also present. The attacks came on suddenly, sometimes when the children were at play, and in other cases at night, when in bed, and began with vomiting, followed by a watery diarrhea, headache, drowsiness and fever, which subsided after some hours, and they appeared perfectly well, until the next attack. Several of these cases had gone for a long time without recognition and showed a marked malarial cachexia. Blood examinations, in all of them, demonstrated tertian parasites in large numbers.

Puerperal Sepsis.—In cases of puerperal sepsis, we have an endometritis, which is either of the putrid or septic variety. It is a matter of considerable importance to determine which form is present, as the treatment is largely influenced by the type of infection found. In many cases the clinical symptoms will be our guide, but the only method by which we can arrive at a positive conclusion is by taking cultures from the interior of the uterus by means of a glass tube, first introduced by Döderlein. By this means we are enabled to know within twenty-four hours whether we have to deal with a streptococcic and dangerous infection or whether we have present merely a sapremic condition comparatively harmless. In the one case antistreptococcic serum is indicated, possibly a hysterectomy to remove the infected uterus, in the other curettage. In the former case the employment of the curette could only do harm by destroying nature's wall of leucocytes thrown out as a barrier to the further ingress of infection. It must be remembered that the lochial discharge, in streptococcic infection, may not be foul smelling, as putrid endometritis is not present. In sapremic conditions the reverse is true, the bacteriological findings are necessary to clear up the diagnosis.

In many acute cases of gonorrhea the character of the infection is self-evident but in others, especially in chronic cases, it is a matter of vital importance to discover the presence of gonococci. It is a matter of a few moments only, to make a smear, fix stains and examine for this most persistent and annoying organism. No case should be considered as recovered unless repeated examinations of the urethral secretions fail to show them present. Leucorrheal discharges, when persistent, should be examined for this organism. In purulent otitis media the character of the pus organisms should be determined, if the *Streptococcus pyogenes* or pneumococcus is found there is much liability of mastoid involvement.

The diagnostic value of the pneumococcus is now freely established and it can at times be recovered from the sputa before the physical signs of croupous pneumonia are discoverable. It will materially increase the chances of recovery of our patient, if thus early we are fully aware of the serious nature of the impending disease, and are able to conserve his energies for the coming struggle.

In malignant pustule or anthrax the *Bacillus anthracis* can frequently be discovered in the pus without resorting to cultural growth. The chemical analysis of the gastric contents obtained after a test meal by the stomach tube is of great diagnostic value and should be more used by the general practitioner. The passage of the tube is easy, requires no special skill or special training and only the unconquerable repugnance of a patient, or some morbid condition, such as aneurism or gastric ulcer, should preclude its use.

The secretory and absorptive functions of the stomach, also motor insufficiency, due either to atony or structural alterations of its walls, can readily be discovered. The gastric juice should be examined for the reaction, presence of hydrochloric acid, lactic acid, pepsin and rennet ferments, products of starch digestion, mucus, bile, blood, pus and intestinal parasites. Pieces of the gastric mucosa may be occasionally found after the stomach washing. Microscopical examinations of these, may, according to Einhorn, help to supplement a diagnosis. Particles of tumors are sometimes discovered, especially when a malignant growth is at the cardiac orifice.

The persistent absence of hydrochloric acid and digestion leucocytosis, together with the presence of lactic acid, the Boas-Oppler bacillus and other evidences of motor insufficiency are strong presumptive signs of carcinoma, even in the absence of any tumor, felt by abdominal palpation.

The microscope occasionally reveals the presence of the mycelium and spores of the mold fungus introduced into the stomach through food and drink, especially in cheese. The fungus exists in these ingesta in minute quantities and in the spore forms. In the gastritis present in these cases, highly irritating organic acids are found.

In protracted cases of dysentery, especially in those coming from the tropical or subtropical districts, the feces should always be inspected microscopically for the *Amœba coli*. If found, successful treatment can be instituted and our patient be spared the further complication of liver abscess.

In obscure cases of gastro-intestinal disease, we should not be content with the clinical symptoms alone, but supplement these with an examination of stomach contents and feces. Careful sifting of the feces will often reveal the presence of one or more gall-stones, as icterus does not occur in many cases of cholelithiasis.

In cases of advanced anemia, commonly attributed to malaria and insufficient food, especially in those met with in our Southern States, the question of the presence of uncinariasis or hook-worm disease should always be considered.

To Dr. C. W. Stiles, of the Marine Hospital Service, the profession is indebted, for the discovery of these intestinal parasites, not at first considered native to this country, in the poorer white population in the South, a class frequently referred to as "the poor white trash."

The clinical picture of this disease with the anemia and progressive emaciation, the cardiac symptoms, the edema of the face and ankles, the increased pulse and temperature simulated many morbid conditions, so that many cases were thought to be malarial anemia, valvular heart disease, nephritis and rheumatism. The blood examination revealed the condition known as eosinophilia and a high grade of secondary anemia approaching the pernicious form, but a microscopical examination of the feces showed the presence of the ova and embryos of the parasites in numbers varying according to the severity of the infection.

In the brief time at his disposal, the writer has merely indicated but a few of the many applications of these laboratory aids and, in conclusion, gentlemen, permit me to earnestly urge on such of you who have not as yet made use of them; an early investigation and trial of these means of precision in diagnosis.

Mr. Phipps Gives $20,000 for a Building for Consumptives. Henry Phipps has given the Johns Hopkins Hospital, through Dr. William Osler, $20,000 for the purpose of establishing a separate out-patient department for consumptives at the hospital. This announcement was made last week by Dr. Osler.

MEDICAL PROGRESS.

MEDICINE.

Importance of Normal Intestinal Bacteria.—That bacteria are essential to life is evident from certain experiments, demonstrating how difficult it is to rear animals with sterile food. This is especially the case where the normal food is rich in cellulose, which requires more than any other substance, bacterial activity for its disintegration. J. Strasburger (Münch. med. Woch., Dec. 29, 1903) states that it is impossible to render the intestinal tract of the higher animals and man free from germs. Even in polar regions, where bacteria are certainly scant, the intestines contain large numbers. They are responsible for the fermentation in the small bowel and the putrefaction in the large, and the two processes are sharply demarcated from each other at Bauchin's valve. If the alimentary tract is placed into concentrated sublimate solution soon after death, it will turn green above the valve, due to bilirubin, and red below it, owing to hydrobilirubin, resulting from bilirubin by putrefaction. The absence of putrefaction in jejunum and ileum is a wise provision of nature for here the intestinal contents are rich in proteids, which, when absorbed in a decomposed condition, would rapidly cause intoxication and the urine would soon be charged with indican and ether sulf-acids. The intestinal flora is in the main the same in the small and large intestines, but the presence of sugar in the upper part of the alimentary tract plays an important part in preventing putrefaction and in allowing germs capable of setting up fermentation, to gain the upper rand. It is here that many pathogenic germs, accidentally ingested, are destroyed, provided a healthy general condition prevails; the *Bacillus coli* and *Bacillus lactis aerogenes* must thus be regarded as safeguards against disease. Another important function of bacteria is their influence upon peristalsis. Disadvantages resulting from the contaminated intestinal mucosa are few and chiefly concern themselves with a loss of valuable nitrogenous material which naturally goes on with every bacterial proliferation.

The Prolongation of Life.—The consideration of this problem has been a topic for reflection and study since the dawn of thought. Sir Hermann Weber (Brit. Med. Jour., Dec. 5, 1903), states that the diminution of infant mortality and the improvement of the hygienic conditions have raised and will continue to raise the average duration of life. Galen, Cicero and others wrote almost as wisely in the ancient days as modern authors have done. Nevertheless there is a great difference between the old writings and the new. This is due to the immortal services of Jenner, Pasteur, Lister and Koch. From the recent reports of the Register Office of England, it appears that we are justified in assuming that though life is usually limited to eighty years it may be occasionally prolonged to a hundred or even more by the operation of certain internal and external agencies. By studying these we may eventually be able to prolong the lives of many individuals beyond a century. The author reports the result of his examination into the records of more than 100 cases of long-lived persons and concludes that the majority of them were temperate, that they were small meat eaters; that they lived much in the open air; led an active life, often one of toil with great restrictions as to food and comforts; that most of them were early risers; that a great many of them had a joyful disposition and performed their work cheerfully and that only a few were intemperate or idle and lazy persons. The tendency to early death is just as hereditary in some families as longevity, and

these individuals it is whose lives by judicous adherence to the regimen above cited can be most favorably influenced. Saville has shown that death from old age is caused by a kind of atrophy of the tissues and organs connected with the changes in the blood vessels, and the atrophy of the hematogenic glands. Life, in other words, depends to a rgeat extent on the organs of circulation. These questions have received especial attention from Ludwig and Sir Lauder Brunton. Mosso has shown by his ingenious balance on which a man is placed in the horizontal position, that during the act of thinking the head becomes heavier from a rush of blood to it. Walking is the natural exercise of the body and Oertel's method of mountain climbing has shown what a profound effect it may have on the human frame, especially upon circulation. Nor is the week end holiday unimportant. Martin Luther's motto, "Rast Ich so Rost Ich" (If I rest, I rust), is true, but the wear of exercise is more than compensated by the increased supply. Of foodstuffs the author says that adult healthy persons do not need alcohol. The average duration of life in Owen's reports comprising 4,284 persons, was greatest among total abstainers. Very few moderate drinkers living as long and almost no one who had been a hard drinker passed beyond late mid-life. Tea and coffee are considered by the author to be valueless, coffee, because of the volatile oil being more injurious to digestion than tea. Snuff-taking is now out of fashion, but many old doctors maintain, not without some reason, that snuff prevented many forms of frontal headache and acted as a valuable stimulant to the capillaries of the Schneiderian membrane. Massage is important, not alone with the general body, but of localized parts. Friction of the thyroid is probably useful in maintaining general energy. Massage of the scalp retards loss of hair and prevents some forms of headache.

Primary Tuberculosis of the Tonsil.—This subject is discussed by S. Ito (Berl. klin. Woch., Jan. 11, 1904), who also reports two cases, where autopsies were made and no tuberculous foci found, except in the tonsils. These foci were localized in the lacunæ of the pharyngeal tonsil and rarely on the surface. This, together with the examples of secondary tonsillar involvement, which the author has seen, leads him to claim that the diagnosis of these cases can only be made from microscopical examinations. The rarity with which the condition occurs may be attributed to the fact that the tonsils probably offer little resistance to the passage of the tubercle bacilli, and therefore do not themselves become diseased. As a rule tuberculosis of the tonsils runs a mild course without forming any ulcerations. It is also claimed that the tonsil affords a means of entrance to the tubercle bacilli in the numerous cases of cervical lymphadenitis and the fact that the tonsil is not itself involved is explained by the author as follows: (*a*) As already stated, the bacilli are known to be able to pass through the tonsil without causing any local changes, and (*b*) the primary focus in the tonsils may become healed at an early date. If a localized extension does take place it may be attributed to a lessened power of resistance or some particular predisposition on the part of the patient.

Malaria; Epidemiology and Treatment.—The discovery of the part played by the *Anopheles* in the dissemination of malaria has not by any means solved the epidemiological problem, but, as might have been expected, has merely paved the way to that consummation. Large numbers of important accessory problems have cropped up, and the new light which has recently been cast upon these by the almost unparalleled experience of Celli (Arch. f. Hygiene, 1903, Heft 3), certainly brings one measurably closer to the goal. He points out that an essential element in the study of malaria epidemics is to distinguish between the recurrences due to previous infections, and the fresh cases, as also between the various forms of parasite involved. The difficulties connected with making these distinctions are often considerable. Latent malaria can at present be detected by no known test—neither by agglutination nor by hemolysis, as had been hoped. The microscopical detection of the latent forms of the parasite is very uncertain. The sexual forms are often not to be found in the circulating blood during the latent intervals, and lienopuncture is too dangerous to be resorted to as a diagnostic procedure. The clinical features seem actually to be of more moment in deciding this problem than any other. In general, if the infection is double or triple, recurrences are apt to be more frequent and obstinate. If a given attack of malaria is persistently followed by malaise, weakness, anemia, and splenic tumor, it is safe to conclude that the infection has not been banished. There are also certain factors which strongly predispose the recurrence—namely, deficient nutrition, severe labor, "catching cold," and other diseases. The study of the relation maintaining between the epidemics of recurring disease and those of fresh infections afford certain very interesting and puzzling comparisons. The former always begin somewhat before the latter—the so-called "pre-epidemic" increase. Moreover, in any given locality, either one of them may be very severe, and the other very light. The epidemics of fresh cases show an annual curve which varies according to the parasite: The light tertian forms begin in the spring, even as early as March in Italy, the severe tertian and estivo-autumnal forms make their earliest appearance in summer, while quartan fever is chiefly an autumn disease. The study of the curve of the epidemics as such, which has yielded such remarkable results, has been supplemented by that of the relationship between the mosquitoes and the infections, with no less strange an outcome. In general, it is found that the extent and severity of malaria epidemics in any given region show no relation to the extent of swamp-land and of anophelismus. Moreover, the study of mosquitoes in successive years shows an apparently highly variable susceptibility to the disease, thus in 1902, in Vico, of 630 mosquitoes investigated, only three were found to be infected. Celli concludes that the insects possess an acquired or natural immunity against the disease, which lasts for a varying length of time, sometimes apparently over centuries. A very large number of studies were made, with the assistance of the Italian government, upon the treatment, prophylactic and curative, of the infection. Quinine was used during the latent periods, experiments being made with all its available salts in every practicable form of administration. It was found that the percentage of recurrences may be considerably curtailed by an energetic "interval" treatment, yet a fairly large proportion of cases are not affected thereby. Celli considers that excepting quinine all other medicaments are powerless against malaria. For the secondary anemia, quinine, supplemented by good feeding, also affords the best treatment. The prophylactic treatment by quinine of individuals previously not infected has met with a very full measure of success. On the other hand, the efforts to exterminate the mosquito by sanitary engineering is regarded by Celli as almost futile and chimerical. It involves too great an outlay of money, which is likely to be wasted.

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SYPHILIS IN OUR COLONIES.

In proportion to our territorial aggrandizement our interest must grow in this somber but important matter. E. Jeanselme, discussing in the *Revue Française de Medicine et de Chirurgie*, the prevalence of the disease in the French colonies, calls the attention of all colonizing nations to it as a very serious problem. At the present moment, he says, "certain races remain immune, viz., some tribes of Central Africa and of New Guinea and the savage and little known dwellers among the mountains of Laos." There is, however, as opposed to this, a territory overwhelmingly large, whose population in recent years has been decimated by syphilis. This is particularly true of certain parts of Central China. The luetic plague has been less austere in Japan and in the Malay archipelago and in Hindostan. In Siam, according to Deuntzer, syphilis is present in 75 per cent. of the male European population. In the same country, among the upper native classes, a man who has not had syphilis is a rarity. French Indo-China has suffered to a like extent. This explains the frightful ravages of syphilis among the European troops who garrison these countries, and although in those regions where the infection is not of recent origin, the character of the disease need not necessarily be more severe than we are accustomed to encounter here, it is on the whole a more virulent disease than that seen in the temperate zones.

The gravity of syphilis in the tropics is determined by various factors, the most important of which probably centers in the resisting power of the race to which the individual belongs. It is said that certain of the blacks of the Malay region enjoy relative immunity, but this is by no means true of all.

In the Philippines the syphilitic infection is characterized by peculiar malignancy. This is of ultra importance to us, because the time may not be distant when we shall send large numbers of young men into that region. Throughout the Tropics it is peculiar that the primary infection is very often extragenital. The explanation for this is that excoriations of the body are relatively frequent, because very few clothes are worn. Furthermore it is possible that some of the numerous tropical insects are active agents in spreading the contagion. Again, the modes of life which characterize the hot countries, the single utensil which carries the rice, the common pipe and water-dipper, which circulate from mouth to mouth, as well as other like factors are important agents of infection. The truth of this is evident by the startling frequency of labial chancres. These facts, which tend in a measure to eliminate syphilis from its usual environment and to place it among the diseases to which all may be almost equally prone, make it very desirable that measures should be taken for its control in our territorial acquisitions.

In the Far East it has been noted that syphilis has usually been carried from place to place by itinerant Chinese merchants. This is particularly true in Siam, where, in centers which have been the seat for many years of a sort of Chinese mercantile invasion, it is certain that at least half of the inhabitants are the loathsome victims of malignant syphilis.

In concluding his able paper, the author urges that immediate prophylactic measures be taken for the safeguard of the French colonies from further contamination. With this end in view, he suggests that all civil and military officers, all missionaries and others in any way connected with the government, should be instructed as to the gravity of the syphilitic peril and be taught how to recognize and combat the characteristic lesions of the disease. All colonial physicians in government employ should, he urges, receive special instructions in venereal hospitals in order to en-

able them to diagnose the rarer forms of syphilis.

With our marine hospital service, probably leading the world in the administration of prophylactic medicine, we shall not long be without reports of work done in this important field.

IMPORTANT MEDICAL LEGISLATION.

Two bills relating to important subjects in medicine, one already introduced, the other about to be introduced into the New York State legislature, were under consideration at the recent annual meeting in Albany of the Medical Society of the State of New York. The most important of these was that with regard to the licensing of opticians in order to permit them legally to prescribe glasses for those who seem to need them. The other concerned the regulation of the name and seal of certified milk except in connection with milk that had been actually examined and pronounced worthy of certification by properly constituted boards of health or committees of medical societies. Though demanding very opposite treatment neither of these measures should be neglected by the profession. Medical men who are in a position to exert influence on members of the legislature should employ it for the purpose of hindering the passage of the first bill and assisting in the passage of the second.

The optometry bill, as it is called, has come up in one form or another several times and in many States. Dr. Wiesner, of New York, called attention to the fact that asthenopia was becoming much more common in crowded city life, under the stress of the severe competition which now characterizes modern existence. Scarcely a block of the business portions of our cities fails to display at least one sign of an optician who measures for glasses and directs people with regard to the care of their precious organs of vision, though as a rule he knows nothing more than how to place spectacle lenses in frames and judge of the results produced in the facilitation or obscuration of vision. As is easy to understand, most of them have absolutely no knowledge of the eye and no idea of the serious lesions and complex pathological conditions that may constitute the basis of the dimness of vision for which they so glibly pronounce the word glasses and proceed to measure the patient therefor. It is almost as if the eyes were like the feet and needed no more skill in fitting them than the shoemaker has in fitting shoes. As a matter of fact the refracting optician not infrequently knows much less about glasses for the eyes than the shoemaker does about shoes.

A recent attempt has been made to gain influence for the optometry bill by sending out circulars, enclosing a postal card, which the doctor is expected to sign and return. The circular is a curiously interesting and specious presentation of the optician's side of the question of refraction. We doubt not that many physicians who did not realize just what the real question at issue was have already signed these postal cards and returned them to the committee of business men having the optometry bill in charge without realizing that by so doing they were actually encouraging the passage of a measure that derogates from the importance of the most delicate and demanding of specialties in medicine, one of which requires the widest knowledge and the best of judgment. After all the prescription of glasses can never be the work of a mere artisan. It must always be a serious professional duty. No prescription that a physician can write may do more good than a proper measurement for glasses, but, on the other hand, no prescription can do more harm than the recommendation of lenses that are not suitable for the eye under consideration.

It is not necessary to recall many serious injuries that have been inflicted by the untrained optician. Many a patient who would probably never have to wear glasses and whose original complaint required local treatment instead of a prescription for lenses is condemned to the use of spectacles as the result of having worn them for a considerable period on the recommendation of some refracting optician who knew no better. It is the optician's business to sell his glasses. Like the advertising specialist who charges nothing for his services, but whose medicines must be purchased at a high rate before the patient leaves his office, the optician must fit his patient with glasses in order to recompense himself for the time spent in studying the patient's eye. It is important then that not the least encouragement should be given to the present unfortunate abuse which it is to be hoped will before long, with many others, be removed as the result of union in the medical profession here in New York State. As for the physicians who have been fooled into signing the postal card and returning it without realizing the measure that they were encouraging, perhaps this will serve as a lesson that in matters of this kind too great care cannot

be exercised and that it is for matters of this kind that medical journals should be consulted.

As regards the other piece of proposed legislation, the guardianship of the certification of milk, there is no bill pending that is likely to do more good. The improvement of the milk supply of the cities of this State as the result of the certification of the products of certain carefully examined dairies and farms has brought about a reduction in infant mortality greater than any other measure ever attempted for that purpose. If, however, milk producers or wholesalers are allowed to falsify certification and claim official approval where it has not been given without fear of legal punishment, much of the good that has been secured will be lost. The bill making such falsification a misdemeanor deserves every encouragement and will, it is hoped, be promptly passed by the legislature. It is minute details of care like this that mean very much for the health of the infants of our cities' poor. No effort should be spared then further to safeguard and secure the permanency of the reform in milk collection and distribution which has thus far proved so effective.

SURGICAL INTERVENTION IN TYPHOID PERFORATION.

ON April 7, 1884, a man, aged forty years, who was seized with unmistakable evidences of intestinal perforation during an attack of ambulatory typhoid, was operated upon by Von Mikulicz. Pieces of potato were floating about in the man's belly. He ultimately recovered.

Recently Drs. R. H. Harte and A. P. Cooper Ashhurst, of Philadelphia, presented a compendious monograph on the subject of intestinal perforation, which reviews not alone the history of the condition, but gives the most modern results and the most recent technical methods. Intestinal perforation is said to occur in from one to eleven per cent. of cases of typhoid fever, the average of nearly nine thousand cases reported by various authors being 2.5 per cent.

The etiology of perforation has been given very careful attention. Whites are more prone to perforation than blacks. It is more common in the male sex by a ratio of four to one. Over one-half of all cases have occurred between the fifteenth and the thirtieth year. Intestinal parasites, always predisposing in their influence, have, with certainty, occasionally acted as the exciting agent of perforation. The stage of the disease and its severity bear a definite ratio to the incidence, more than half of all perforations occurring during the second and third weeks, and while Osler says "There is certainly no relation between this accident and the severity of the disease, others believe on apparently as good authority that perforation is more apt to occur in the ambulatory than in the classic forms.

Pathologically, Mallory has shown that the so-called "typhoid cells" consist of endothelial cells which have become gorged with leucocytes. The process of formation of these typhoid cells continues, and if the infiltration does not dissolve, the affected area is cast off into the bowels by necrotic action. Ischemia and toxemia aid in this process. Undoubtedly a great many of these ulcers perforate the serous coat but are not heard from for the simple reason that the ever alert peritoneum protects the individual's life by soldering the rent with fibrin; the gut may become attached to a neighboring coil, or the surgeon's friend, the omentum, may wrap itself about the part and prevent contamination. It is rare that perforations are multiple, indeed the number is so small that it is a question whether one should not be justified in ceasing to search for further lesions after one has been found.

The most important symptoms are pain, vomiting, temperature, delirium, rigidity, pulse and respiration, facial expression, tenderness, dulness and edema of the abdominal walls. From these symptoms, which in most cases are vague and unreliable, a differential diagnosis most frequently has to be made from appendicitis, peritonitis, intussusception, cholecystitis, gastric ulcer, suppurating mesenteric glands or splenic infarcts.

The treatment, according to the review of Harte and Ashhurst, of all patients suffering from intestinal perforation in typhoid fever should be by laparotomy. To trust to medical treatment alone is "nothing short of folly." According to the calculations of Briggs (*American Journal of the Medical Sciences*, May, 1903), more than 16,000 perforations of the intestine due to typhoid occur annually in the United States alone. What must be the total mortality from this appalling disaster the world over? Of this stupendous sum of 16,000 all died save fourteen. The mortality is thus, in cases demanding operation, 100 per cent.

The choice of the anesthetic is not unimportant. Many surgeons have advocated the free use of massive infiltration. While theoretically,

at least, this may be as efficacious in preventing shock as general anesthesia, the fact remains that it cannot prevent psychical shock or give that relaxation to the abdominal muscles that is so desirable. A few whiffs of chloroform or ether usually suffice in the debilitated state of the patient to effect complete narcosis.

Speed, from the time the knife is taken in hand, is as essential in this operation as in that of Cæsarean section. The incision is best made to the right of the median line over the cecum. The deep epigastric is not apt to be wounded and that part of the small gut most often affected is, by this pathway, most thoroughly exposed. The cecum should be located at once. The appendix should be removed if necessary. A large number of methods have been devised for the treatment of the perforation, but it is conservative to say that the majority of them can be best handled through infolding by a purse-string suture. Similarly there exists much diversity in opinion as to the most judicious method of affecting the toilet of the peritoneum.

The analysis of 362 cases shows a mortality of 74 per cent. Those perforations, which were under one-eighth of an inch in diameter, gave a mortality of but 51.3 per cent. Those under one-half inch a mortality of 76.7 per cent. Those over one-half inch of 69.5 per cent. The time elapsing between perforation and operation presents an interesting problem. Of those operated within half an hour of perforation, the mortality was 100 per cent.; within one hour 100 per cent., after two hours 66 per cent., after three hours 25 per cent., after four hours 85 per cent. After seventy-two hours the ratio again drops to 55 per cent. After two weeks it is but 50 per cent. It would seem from this that the most favorable time was about three hours after perforation, although the number of cases upon which these statistics are based is not yet sufficient to make such a conclusion positive.

Without going further into the details of an operation which has been exploited by some and condemned by others, it is sufficient to say that this monograph presents facts which should be known to the entire profession of the land. If 16,000 people perish annually from intestinal perforation in the United States alone, and if from an analysis of 362 cases, more than one-quarter were saved from certain death, the most conservative practitioner must be forced to agree with the statement of the authors: "To trust to medical treatment is nothing short of folly."

ECHOES AND NEWS.

NEW YORK.

Appointment at Mt. Sinai Hospital.—Dr. Samuel M. Brickner, who for many years has been associated with the Gynecological Department of the Mount Sinai Dispensary, has been appointed Adjunct Gynecologist to the Mount Sinai Hospital. Dr. Brickner's active service begins with the opening of the new hospital buildings in March.

X-Ray Prize Essays.—Believing that the further development of X-rays is of great importance to surgery and medicine and the human race, and to encourage research and disseminate the knowledge gained, the *Illustrated Review of Physiologic Therapeutics* offers the sum of $1,500 in cash prizes for the best essays on X-rays in Medicine and Surgery, the first prize being $1,000. All surgeons, physicians and hospitals interested in any branch of X-ray work should write to the *Illustrated Review of Physiologic Therapeutics*, 19 East Sixteenth Street, New York City, for information concerning title, time allowed, conditions, etc.

Civil Service Examinations for the State and County Service.—The State Civil Service Commission announces general examinations to be held February 27, 1904, including the following positions: Physical instructor in State institutions; physicians in State hospitals and institutions of both regular and homeopathic schools. Applications for these examinations must be made on or before February 22. Full particulars of the examinations and blank applications may be obtained by addressing the Chief Examiner of the Commision at Albany.

Clean Money.—Dr. Darlington, President of the New York Board of Health, was heard Jan. 29, by the House Banking and Currency Committee on the pending bill providing for the issue of new notes to the end that the paper currency may be retained in good sanitary condition. Dr. Darlington explained that he was engaged in an investigation to ascertain whether old circulating notes are mediums of transmitting disease germs, a fact that is fully believed by physicians. The doctor believes a provision for keeping the paper money of the country as clean as possible by constant renewal would be a step in the right direction.

PHILADELPHIA.

Dinner to Dr. Hinsdale.—Members of the medical profession tendered a farewell dinner to Dr. Guy Hinsdale at the Union League, Friday evening, January 29, previous to his departure for Hot Springs, Va. Dr. James Tyson acted as toastmaster.

Assistant Medical Inspectors.—Considerable disappointment has been felt over the failure of the Department of Public Health and Charities to appoint 31 assistant medical inspectors in connection with the plan for the reorganization of the Bureau of Health. It is now stated that at the examination held some three weeks ago more than 200 physicians attended, but that only about 60 attained the required average. This was more than enough to fill the appointments, but as the ward leaders were to make the selections and some wards had several successful candidates and others none, there resulted only the filling of places in a part of the city. A second examination has been held and the names of the physicians to receive the appointments will be announced in a few days.

Development of the Rest Treatment.—At the meeting held in celebration of the twentieth anni

versary of the organization of the Philadelphia Neurological Society on January 20, Dr. S. Weir Mitchell gave a very interesting résumé of "The Mental Processes by which the Rest Treatment was Developed." The beginning of the chain of circumstances which finally led to the adoption of the treatment was laid during the Civil War. Dr. Mitchell then noticed the cases of acute exhaustion occurring among the soldiers after or during forced marches, this being seen particularly in the Gettysburg campaign. These men remained for weeks or even months in a condition which would now be called neurasthenia. It was noted, however, that complete rest and forced feeding brought them up so that in many instances they were able to again join the ranks. Some time after the war a man who was under treatment for locomotor ataxia fell and broke a leg. This kept him in bed for three months, and as soon as he was out he broke the other leg, this enforcing a second rest of three months. When he finally recovered the use of his legs it was seen that the ataxia was decidedly improved. In 1874 Dr. Mitchell was consulted by a married woman, aged twenty-six years, who was exhausted primarily by much charitable work and the bearing of children in rapid succession. Having ample finances she had tried every known means for the restoration of health, but at the time mentioned was a pitiable invalid. For some time Dr. Mitchell had no better success than had other physicians. He saw that the patient needed both rest and exercise, and recalled the beneficial effect he had seen from the rubbing of people by an old man, who now would be placed in the list of osteopaths and similar performers. A young lady was then engaged for the patient, and by personal instruction Dr. Mitchell developed a system of massage which produced remarkable results. Absolute seclusion of the patient, with massage and electricity, enabled forced feeding to be employed, and rapid restoration to health followed. This first case was discharged in May, 1874. Others followed, and in 1875 appeared the first paper describing the new method of treatment. It was at first received with incredulity and criticism that almost amounted to personal invective. The same reception was accorded the idea in England, where a member of the British Medical Association said that he would rather see his patients die than be cured by such a method. Dr. Mitchell then traced briefly the history of the reaction against this opposition, the use and advocacy of the treatment and finally its world-wide adoption of its principles in the treatment of suitable cases.

CHICAGO.

Crusade Against Tuberculosis.—At the forthcoming meeting of the Illinois State Medical Society, to be held in Bloomington in May, leading physicians of this city will discuss the problems of prevention and cure of this disease, and among the essayists will be Drs. Frank Billings, Geo. W. Webster, H. N. Moyer, Robert B. Preble, and Chas. L. Mix. It is expected that valuable data regarding the ravages of the disease in Illinois will be furnished, also the effect of different occupations on the health of tuberculous patients and the various methods of treatment will be discussed. The statistical features will be confined to the State, and will include mortality, influence of climate, topography, occupation, residence (city or country), and such other data as will be interesting. The symposium will be simply preliminary to more active measures.

Establishment of Antitoxin Plant.—It is stated that Dr. Geo. W. Webster, President of the Illinois State Board of Health, recently said that the antitoxin manufacturers were selling serum as cheaply as possible. This precipitated a discussion which led physicians to adopt a resolution declaring that an antitoxin plant should be established, independently of all commercial concerns. Accordingly, Dr. Robert B. Preble, President of the Chicago Medical Society, has urged that the matter be laid before the City Council. Dr. Webster does not believe there is any law giving the State Board of Health power to manufacture antitoxin, and even if the Board had the power, there were not enough funds to start the work. Dr. Frank N. Walls, Secretary of the Chicago Medical Society, says that it costs Massachusetts 50 cents a thousand units for the serum it manufactures. New York State pays from 30 to 40 cents for its product. Dr. Webster feels sure that the antitoxin firms will supply the serum at the most liberal terms possible. After the discussion a resolution was passed declaring that the condition of the antitoxin market is such as to render it wise to establish a plant independently of all commercial concerns. The City Council has expressed its interest in the matter, and it is believed by a little judicial pushing it might be induced to do something. Dr. L. Hektoen, Secretary of the Memorial Institute for Infectious Diseases, is quoted as saying: "I am authorized to state that if a fund should become available, the Institute will furnish space for a laboratory and ground for stables, provided it is not attempted to furnish serum for any State other than Illinois."

New Hospital for Children.—A new hospital will be erected to take the place of the present Maurice Porter Hospital. It is to accommodate 60 children. Mrs. Julia A. Porter has given $75,000 for the erection of the building. The present hospital was founded in 1882 by Mrs. Porter as a memorial to her son. At first it had 12 beds, but later 31 beds. The new building is to be a modern fire-proof structure, with every facility for the care of sick children. The six requirements of the Children's Hospital Association provide for an observation department, where children are kept two weeks before admission to the wards; an isolation department, laboratory facilities, pure milk supply, bedside and didactic instruction for nurses, and one thousand cubic feet of air for each patient.

Chicago Medical Society.—At a meeting held January 20, there was a symposium on Dietetics. Dr. Fenton B. Turck read a paper on The Dietetics of Atonic Dilatation of the Stomach, in which he discussed the physiology and pathology in relation to atonic dilatation, as well as the therapeutics based on the pathology. He divided the mechanical work of the stomach into three stages: First, distention with food; second, expulsion, and, third, relaxation. He said that the normal resistance at the pyloric end of the stomach increases the tension (lateral pressure), which within physiological limits increases the stimulus to more powerful and frequent contractions. At the end of the digestion the maximum degree of power and number of contractions are obtained. Atony and dilatation may be found as the result of increased resistance in front, such as by stenosis of the pylorus, and cause prolonged overwork and exhaustion of the gastric muscles, or the overwork and exhaustion may be due to the constant and excessive work upon the load within the gastric cavity. The overwork and ultimate exhaustion are the same in either case, but the pathology and therapeutics are a different question. In determining the exact regimen of dietetics in atonic dilatation, all symptoms and conditions must be subordinated to the one central

indication, namely, the restoration of the exhausted gastric muscle. In order to apply therapeutics specifically, the degree of exhaustion must be measured. He said the two main pathological conditions to be corrected in simple atonic dilatation of the stomach were the exhaustion of the gastric muscles and bacterial growth in the gastric cavity. The main effort must be directed against the muscle weakness, not only for the nutrition of the patient, but for the prevention of bacterial growth and the resulting toxins which produce many of the grave symptoms found in this serious malady. To correct the muscle weakness and allow the musculature to recover, it may be necessary to lessen the total amount of food for a period, and undernourish the patient, thus giving rest to the diseased organ at the expense of the whole organism. The gain here is twofold: First, food is better digested, and, second, it is not robbed of its nutritive value by bacterial growth. In the beginning of a course of dietetic treatment, after the stomach has been placed at complete rest, the question of the character, composition, preparation, and time of giving food presents itself. A uniform diet for all the degrees and forms of atonic dilatation cannot be arranged, but the author presented a few examples. Theoretically, a liquid diet is most advantageous; practically, finely divided solid food is best, properly prepared, with appropriate amount of liquid, sufficient to aid the stomach to macerate the mass and inject it into the intestines. Usually two meals a day are ordered, one in the morning and one in the evening. In connection with diet, certain mechanical methods of treatment are not only useful, but often indispensable. For the mechanical effect, lavage is recommended by most of the text-books, and added to this galvanic and faradic electricity, general baths, exercise and drugs. A large number of the patients he had treated in the last ten years had all these methods used without success, often with harmful results. He has presented many of this class of patients, after a course of treatment, before the Society, on several occasions. He has also shown the objections to lavage. It has its use in complete stagnation as a palliative measure. Those methods are most valuable which will mechanically affect the gastric muscles direct, without washing out the necessary nutriment and secretions from the stomach cavity. Riegel seems to have obtained but little benefit from the use of static, galvanic or faradic electricity. The speaker has found high frequency with the Oudin resonator of considerable benefit as an adjuvant.

Diet in Hyperchlorhydria.—Dr. B. W. Sippy, in a paper on this subject, said that hyperchlorhydria designates a condition in which an abnormally great quantity of hydrochloric acid is secreted during the time the food is in the stomach. The subjective symptoms of the condition are referable chiefly to the irritation produced by the excessive quantity of hydrochloric acid upon the nerve endings of the mucous membrane and stomach and the adjacent esophagus. The following symptoms are more or less distinctive: Gastric discomfort, appearing from one to two hours after eating, combined often with eructations of gas, a feeling of fulness, burning sensation in the stomach, heartburn, acid pyrosis, rarely nausea, and still more rarely, vomiting. Patients seriously afflicted restrict their diet because of fear of distress after eating; they lose weight, become irritable, and form by far the largest contingent of the chronic dyspeptics. Accuracy in diagnosis demands chemical analysis, which is simple. When hydrochloric acid is in excess to the normal, surplus symptoms may be present or not, depending largely upon the sensitiveness of the nerves of the gastric mucosa. Even a very high grade of hyperchlorhydria may produce no symptoms. Such a hyperchlorhydria is said to be latent. In some cases a hyperesthesia of the mucous membrane to normal acidity is present. Clinically, such cases are symptomatically hyperchlorhydrias, and are inseparably related to hyperchlorhydria as determined by chemical analysis. In the treatment of the condition diet is all-important; but etiology must be taken into account in each case. The following causes were mentioned: Hasty eating, improperly prepared food, overeating, certain ill-defined disorders of the nervous system are responsible in many cases. Frequent in neurasthenics; secretion may be increased or abnormal sensitiveness of the nerves may be induced by mental states, nervous shock, worry and fatigue. The anatomical causes that are operative are ulcer, with or without pylorus spasm. In the irritative stage of gastritis, hyperchlorhydria may be present. There may be benign pyloric obstruction. There are certain toxic causes, chiefly the abuse of alcohol and tobacco. Fortunately, by close attention to diet alone most cases may be satisfactorily treated. The diet should fulfill the following indications: First, mechanical, chemical and thermal irritation of sensory and secretory nerves of the stomach by food and drink must be reduced to the minimum. Second, food should contain a liberal quantity of albumin to combine with the excessive hydrochloric acid. Third, the diet must be sufficiently nourishing. Fulfilment of indications is simple. All foods should be taken in a state of fine subdivision, and great care given to thorough mastication. Meat should be scraped or finely teased apart. Potatoes and all vegetables should be given in as near puree form as possible. Pickles, potato salad, fried potatoes, coarse nuts, radishes and similar coarse articles should be avoided. Coffee, spices, sharp condiments, mustard, pepper, vinegar, acids, and alcoholic drinks should be avoided. Hot and cold food and drink should be avoided. The diet should be a mixed one, containing albumin, fat and carbohydrates. In the beginning of the treatment a liberal quantity of albumin in the form of lean meat should be given, because it is non-irritating and combines a maximum quantity of hydrochloric acid. Fat in the form of butter and cream is well tolerated, and tends to reduce the quantity of acid secreted. Because the excessive acidity quickly inhibits the action of the ptyalin, the starches should be restricted moderately at first or given in dextrinated form, as zwieback or toast. The following plan may be adopted in most cases with success: For a man weighing 160 pounds, during the first week or ten days one-third pound of rare steak, well cooked, veal, mutton, lamb, chicken or turkey; sixty grams of toast or zwieback, a glass of milk and cream, equal parts, an ounce of butter, and, if desired, a soft egg or a hard-boiled egg grated for each of the three meals a day. If constipation is present, stewed apples, prunes or figs may be added to the diet. As a rule, little discomfort, aside from a slight fulness, is experienced. A powder of calcined magnesia and sodium bicarbonate, equal parts, ʒss, may be given after meals, at the time discomfort appears. A gain of two and three pounds will usually be recorded during the first week. The diet is then enlarged. Rice, oatmeal, well-cooked; vegetables, puree, stale bread may gradually be substituted for toast, and after four or five weeks a normal diet may be resumed. The patient should be instructed to avoid certain named articles, and at the first intimation of

an attack the restricted diet should be resumed for a few days.

Dietetics in the Treatment of Diabetes.—Dr. A. C. Croftan limited his discussion to a disquisition on the modern mathematical ideas underlying the dietetic treatment of diabetes, and called attention to the fact that in the light of our latter-day knowledge of metabolism it is possible to regulate the diet of diabetic cases with absolute accuracy. He condemned the popular fallacy of withdrawing all carbohydrates from the food in every case that presents itself with sugar in the urine. The two chief dangers of this practice are, in the first place, the utter impossibility of adequately nourishing patients with fats and meats alone; in the second place, the danger of permitting the development of diabetic acidosis, and its almost inevitable consequence, diabetic coma. The speaker at some length explained the application of certain physical laws in regard to the heat and labor equivalents to physiological and pathological processes, and showed by simple calculation of the caloric value of the food and the caloric value of the excreted sugar, that one can determine mathematically just how much loss of proper tissue the patient suffers, and precisely which of the tissues are sacrificed. He recommended establishing several degrees of glycosuria: One in which the patients can tolerate a certain amount of carbohydrates; a second one, in which not only the carbohydrates must be withdrawn, but a certain proportion of the food albumin must be reduced before the sugar disappears; a third and most severe form, in which the sugar does not disappear, even when all the carbohydrates and a large proportion of the albumin are withdrawn. Based on this subdivision, the dietetic treatment must be regulated. In conclusion, the author spoke of the factors that determine the development of acidosis and coma, and mentioned the dietetic means to prevent these accidents. He bitterly condemned the shallow practice of handing patients with diabetes printed diet sheets at random, and made a strong plea for strict individualization in the treatment of this disease.

Dietetics in the Treatment of Brights Disease.—Dr. Arthur R. Elliott stated that the scope of this subject is so broad that no attempt was made to consider it in full detail. The speaker confined his discussion of the subject to a consideration of the most important recent advances in this field of research. The principles of protective dieting in Brights disease include not only relief to the kidney from all superfluous work and irritation, but also the no less important consideration, caring properly for the nutritive needs of the general economy. In order to enforce rationally these principles, it is necessary to know which of the urinary solids are easily excreted, and also those which are removed with difficulty by diseased kidneys, so that we may be in a position to exclude all foods that cause the formation of end products which are inimical to the kidneys. Von Noorden's studies of the excretion of metabolic products furnished the author with information that enabled him to construct such a dietary. He found that among substances excreted with difficulty in nephritis are urea, inorganic sulphates, creatinin, urine pigments, hippuric acid, phosphates, and, under certain circumstances, water. On the strength of these findings he excludes, on account of urea and inorganic sulphates which they contain, all proteid foods over and above the amount necessary for purposes of systemic nutrition. On account of creatinin, meat extracts and broths; on account of urine pigments, foods containing hemoglobin; on account of phosphates, he advises that calcium carbonate be given in medicinal doses several times daily, when the patient is taking milk freely in order to arrest the phosphoric acid in the bowel, when it remains in combination with calcium. On account of the hippuric acid which they contain, he excludes certain green vegetables, cranberries, and fruits containing kernels (prunes, plums, etc.). On account of uric acid and alloxin bodies, he excludes all glandular organs used as foods, *i.e.*, kidneys, liver, sweetbreads, also coffee and all malt beverages. Alcohol is also forbidden, save for medicinal purposes. Milk still remains the staple article of diet in acute nephritis. The more nearly the disease approximates the acute form, the more exclusively should milk be used as the chief source of proteids. Exception is taken to exclusive milk diet in acute nephritis, owing to the poverty in iron, and the large quantity (three to four liters) necessary to furnish the nutritive calories needful for systemic purposes. It is advised, therefore, to enlarge the milk regimen by the addition of simple farinaceous foods and modify the milk by the addition of sterile cream in the proportion of one to four of milk. Of this mixture, one and one-half to one and three-quarters liters a day is allowed the patients with acute nephritis. As convalescence progresses, the diet is gradually extended. Full normal diet should not be permitted until all signs of nephritis have disappeared in the urine. Exclusive milk diet is inapplicable to the treatment of chronic nephritis, owing to the nutritive deficiencies and unfavorable influence on pulse tension. Formerly patients were urged to drink abundant quantities of water under the mistaken idea that by such means elimination of organic waste was increased. As a matter of fact, during the stage of dropsy in acute nephritis water is one of the substances excreted with difficulty by the kidneys. Great benefit may follow the restriction of fluids during this stage. This course is especially indicated if dyspnea or other evidence of cardiac embarrassment exists. As the case improves, the fluids may be increased in amount. By controlling the amount of chlorides ingested with the food, Widal and Javal were able to demonstrate that in certain cases of parenchymatous nephritis edema and albuminuria could be markedly influenced. By excluding as far as possible all chlorides from the diet, a decided reduction of the dropsy and albuminuria was effected. They conclude that salt is for certain cases of parenchymatous nephritis a dangerous food constituent, and they propose a cure by dechlorination, *i.e.*, the exclusion of all salt from the diet. Their results have been confirmed by subsequent observers. The writer reports two cases of parenchymatous nephritis very favorably influenced by this treatment. It is probable that in the dechlorination principle we possess a valuable adjunct to the treatment of parenchymatous nephritis. Dietetics in chronic interstitial nephritis is much more involved than in other forms. The high arterial tension with cardiac hypertrophy almost invariably present introduces a peculiarly difficult element into the treatment of these cases. Any diet which does not take into account these cardiovascular conditions will prove inappropriate and harmful. Regarding the choice of proteids, it is now known that the old and oft reiterated dogma of the superiority of white over red meats is incorrect. The researches of Walker, Hall, and Kaufmann and Mohr prove that red meats are no more harmful than white, and are equally available to the nephritis invalid. The vegetarianism of some clinicians is to be condemned, on account of its bulk, nutritive deficiencies, and high content of water. Meats are conse-

quently a necessary part of the diet in this disease, and it is a matter of indifference whether white or red meat is taken. We must nevertheless strictly confine the amount of proteid food within certain fixed limits. The limit of renal capacity for nitrogen excretion in interstitial nephritis corresponds to the ingestion of about 100 grams of albumin. Within this limit the amount should be restricted. It should never be forgotten that every patient with interstitial nephritis also has heart disease, and that high tension and cardiac failure are constantly menacing elements. Consequently the simple rules of cardiac hygiene, of which moderate-sized meals and limitation of fluids are among the most important, must be enforced. Provided the amount of fluid be not reduced below 1,500 c.c., organic elimination via the kidneys is not interfered with. In the presence of stenocardia it may become necessary to abandon the habitual dietary, and temporarily substitute one specially designed for lower arterial tension. Restriction of fluids to the lowest limit compatible with comfort, and a diet of bread, fruit and nuts may accomplish this within a few days.

CANADA.

A New Secretary for the Ontario Board of Health.—The Ontario Government has appointed Dr. Charles A. Hodgetts to the position of secretary for the Provincial Board of Health, a position which was rendered vacant through the appointment of Dr. Peter H. Bryce as Medical Inspector of Immigration under the Dominion Government. Dr. Hodgetts has been connected with the Ontario Board of Health since 1890 and was appointed to the position of medical inspector permanently in 1900. The new secretary is a graduate of the Ontario College of Pharmacy (1878) and also a graduate of the Toronto School of Medicine and of Victoria University (1886). After graduation he was for a time house surgeon at the Toronto General Hospital, after which he studied for three years in English hospitals, where he took the degree of L.R.C.P., London. He has had charge of several smallpox outbreaks in the province

To Fight Tuberculosis in British Columbia.—A largely attended public meeting was held in Victoria, B. C., January 20, for the purpose of forming a provincial association to be called the British Columbia Association for the Prevention and Treatment of Tuberculosis. Dr. C. J. Fagan, secretary of the Provincial Board of Health, presented the question at considerable length and moved the resolution establishing the Association. He referred to the need of such an organization, as British Columbia was not abreast of the times in the respect of dealing with her tuberculous citizens, and then there were annually lost to the province 200 lives through consumption. He considered that Kamloops was an ideal spot for a sanitarium and stated that Mr. Gage, of Toronto, the treasurer of the National Sanitarium Association, had promised aid. Financial assistance will also be sought from the local government of the province as well as from the Federal Government. The Lieutenant-Governor, Sir Henri Joly, was elected Hon. President; Dr. Proctor, of Kamloops, secretary, and on the Executive, Dr. J. C Davie, of Victoria, and Dr. R. E. Walker, of New Westminster.

Annual Meetings of Medical Associations.—The Canadian Medical Association meets this year in Vancouver, B. C., under the Presidency of Dr. Simon J. Tunstall of that city. Dr. George Elliott, 129 John Street, Toronto, is the General Secretary. Mr. Mayo Robson will be a guest of the Association. The dates for the meeting are August 23-26, 1904. The Ontario Medical Association meets in Toronto on June 14-16, 1904, under the Presidency of Dr. James F. W. Ross, of that city. Dr. Chas. P. Lusk, 99 Bloor Street, West, is the General Secretary.

The Death of Dr. John Herbert Sangster.—A notable figure in the medical life of the province of Ontario passed away suddenly of heart disease on January 27, while a guest at the King Edward Hotel, Toronto, in the person of Dr. John Herbert Sangster, of Port Perry, Ontario. Dr. Sangster was seventy-two years of age and came to Canada from London, England, with his parents in 1831. From 1866 until 1871 he was principal of the Toronto Normal School, being at the same time Professor of Chemistry and Botany in the old Dr. Rolph's School of Medicine. At that time he completed the study of medicine, and upon his retirement from the principalship of the Normal School in 1871, he moved to Chicago, but shortly after returned to Canada, and commenced the practice of medicine at Port Perry, where he continued in active practice up to the time of his death. The late Dr. Sangster was a member of the Ontario Medical Council to which body he was elected in 1894. He immediately entered upon a campaign looking toward the exclusion from that body of the representatives of defunct teaching bodies. Many years ago Sangster's arithmetic was the standard text-book in the Ontario public schools. He was a frequent contributor to the public press, much more than he was to the medical press.

Experiments with Marmoreck's Tuberculosis Serum in Montreal.—Two patients at the Notre Dame Hospital, Montreal, have been recently injected with Marmoreck's serum, one with tuberculosis of the lungs and the other with tuberculosis of the knee-joint. The operations were made under the supervision of Dr. L. J. Lemieux, of Montreal, who has lately returned from Paris, and where, he states, he witnessed 25 cures for consumption by means of this serum treatment. Dr. Lemieux brought back with him serum sufficient for the treatment of 15 patients. This is the first time the serum has been employed in Canada, and probably the first used on this side of the Atlantic.

Personals.—Dr. T. J. Norman, of Toronto, has been appointed assistant superintendent of the Asylum for Feeble-Minded at Orillia, Ontario, to succeed Dr. Moher. Among the Canadians attending the Tuberculosis Exposition at Baltimore, last week, were Dr. J. George Adami, of Montreal, who contributed a paper on the "Facts, Half Truths and Truths about Tuberculosis," and Dr. J. H. Elliott, Medical Superintendent of the Muskoka Cottage Sanitorium, who presented interesting exhibits and models.

GENERAL.

National Legislation for Pure Food.—The Senate Committee on Manufactures, which last week made a favorable report on the McCumber Pure Food bill, will take up next week the Hepburn bill, which has already passed the House. The Hepburn bill provides that a drug shall be deemed to be adulterated if, when it is sold "under or by a name recognized in the United States Pharmacopœia, it differs from the standard of strength, quality, or purity, as determined by the test laid down in the United States Pharmacopœia, official at the time of the investigation." The McCumber bill tempers this provision to some degree by inserting the proviso "that no drug shall be deemed to be adulterated under this provision if the standard of strength, quality, or purity be plainly stated upon the bottle, box, or other container thereof, although such standard may differ from that determined by the test laid

down in the United States Pharmacopœia. In the further provisions regarding the adulteration and misbranding of foods and drugs the McCumber bill takes the specific definition found in the Hepburn bill, as, for example, "if any valuable constituent of the article has been wholly or in part abstracted," and adds to each such clause the words "so that the product when sold or offered for sale shall deceive or tend to deceive the purchaser." The distinction made by the additional words is a very slight one, and its effect on the enforcement of the law would be for the courts to determine. It is easy to imagine a case in which, for instance, a "substance or substances has or have been substituted wholly or in part for the article," when there would be no deceit. Suppose that for one of the ingredients of a prepared mustard a red substance had been added, making the whole product of a dark orange color. The purchaser would hardly be deceived, as it would be perfectly plain that some substance not in the ordinary formula had been added. Such a product would apparently be deemed adulterated under the Hepburn bill, but not under the McCumber bill.

Medical Library for Maryland.—At a meeting of the Medical and Chirurgical Faculty, held December 28, 1903, it was unanimously resolved to make an appeal to the legislature for an appropriation of $100,000 for the purpose of erecting a suitable and fire-proof building to contain the great medical library which for the last fifty years has been collected by our association, which has become one of the most complete and valuable libraries in this country, and which has now outgrown its present cramped quarters. The grounds upon which they base their appeal are as follows: (1) That the Medical and Chirurgical Faculty, which represents the medical profession of the City and State, have with great effort collected during the course of many years, a valuable medical library, one of the most complete medical libraries in this country; that this library has outgrown the quarters which the profession purchased out of their own collections and with great difficulty; that the destruction of this library by fire would be irremediable, and would be a loss to the entire people as well as to the profession; and finally that the resources of the medical profession are insufficient for the erection of a suitable building. (2) That it is well known that the medical profession, both directly and indirectly, serves the State and the public without remuneration, in advice in matters hygienic, in efforts to improve the health and well-being of the citizens, and in preventing the spread of disease. And that for these reasons, the medical profession deserves the assistance of the State in the effort to place the central library, one of its most powerful instruments, in a proper and adequate building, where it will be protected against destruction and where it may steadily grow. (3) That in providing for the medical library, the State will not only benefit the profession, but by giving the profession the means to improve itself, to study the old and to inform itself of the new discoveries of medical science, as well as to stimulate further research and observation, it will serve itself, for the real benefit will accrue to the citizens themselves; that Maryland is fast becoming one of the leading States in advancing medical science, and that this reputation is of great value to the State; that the improvement of public hygiene, for which the City of Baltimore and the State annually expend great sums of money, as well as the numerous public hospitals and asylums, which depend entirely, or in great part, upon the State and City's treasury, and over which the State and the City of Baltimore act as guardians, require as an absolute necessity the preservation and the continued growth of this great library. (4) That this library is not only of service to the members of the Medical and Chirurgical Faculty, but that access is possible to any member of the profession and to the thousands of medical students who are attracted to Baltimore from every part of the United States and from distant countries. (5) And last of all, this Faculty, which has been for more than 100 years the guardian of public health, the incentive to improvement in its own members and in the entire profession of the State, has never before applied to the legislature for financial aid for any purpose. To accomplish our purpose, it will be necessary for each and every member of the city and county societies to take an active interest, and to personally interview and request the representatives in the legislature (both Senate and House) to support the measure themselves, and to use their influence upon their associates to have this bill favorably acted upon.

Recent Statistics of Physicians.—*The United States.*—The total number of physicians in the United States is probably about 105,000, that of regular practitioners being about 95,000. During 1902 the deaths of 1,400 regular practitioners of the United States were recorded in the *Journal of the American Medical Association.* This is probably within 5 per cent. of the total mortality in the profession of the United States. Consequently the death-rate for the year was about 14.74 per 1,000, a lower rate than is usually supposed to obtain in the profession. The statistics of American life insurance companies show a mortality-rate per 1,000 among physicians of 7 at the age of 25, 15 at the age of 35, 21 at the age of 45, 34 at the age of 55, and 112 at the age of 65. The statistics of the United States census of 1900 show figures closely parallel with the estimate given by the *Journal. Canada.—The Canadian Journal of Medicine and Surgery* compares the situation of the medical profession in France to that of the profession in Ontario. The comparison is significant. In the rural districts of France there are about 3 doctors per 10,000 of population. In the larger cities there are 7.4 per 10,000, and in Paris 10.65 per 10,000. Throughout Ontario there are 11.4 doctors per 10,000, while in the city of Toronto the physicians number 20 to the 10,000. Roughly speaking, therefore, there is in Ontario double the number of physicians per head of population that there is in professionally overcrowded France. *Germany.—Dr. Weimer's Medical Directory* states that there are now 28,127 medical men in Germany, as compared with 27,039 in the previous year, 26,470 in 1900, 26,049 in 1899, 25,178 in 1898, and 24,393 in 1897. The increase of 1,088 in the number of medical men from the year 1901 to the year 1902, is an increase of 4 per cent. and is greater than in any previous year. During the past five years the numerical increase of the medical profession was 3,734, or 15.2 per cent., while the increase of the general population was 9.3 per cent. As regards distribution throughout the various States it is found that 17,126 medical men reside in Prussia, 2,790 in Bavaria, 2,148 in Saxony, 1,147 in Baden, 937 in Würtemberg, 814 in Alsace-Lorraine, and the remainder in the smaller States of the Empire. There are 2,366 medical men in Berlin, 583 in Munich, 573 in Hamburg, 548 in Breslau, 433 in Dresden, 431 in Leipsic, 344 in Cologne, 354 in Charlottenburg, 338 in Frankfort, and 304 in Königsberg. *Austria.*—The Austria *Medizinalkalender* for 1903 states that the number of medical men at the end of 1902 was 11,339. At the corresponding period of the previous year it was 10,797. They are distributed as follows: Lower Austria, 3,325; Upper Austria, 393; Salzburg, 124; Styria, 675; Carinthia, 148; Krain, 104; Küstenland, 330; Tyrol and Vorarlberg, 601; Bohemia, 2,789; Mähren, 943; Silesia, 237; Galicia,

1,382; Bukowina, 130; Dalmatia, 140. In Bosnia Herzegovina there were 100 practitioners. Taking the chief cities, in Vienna there were 2,576 practitioners; in Linz, 60; in Salzburg, 40; in Graz, 270; in Klagenfurt, 37; in Laibach, 36; in Trieste, 181; in Innsbruck, 84; in Prague, 538; in Brunn, 188; in Troppau, 37; in Lemberg, 288; in Czernovitz, 57, and in Zara, 17. *Finland.*—According to official statistics which have recently been published, there are in Finland 414 legally qualified medical practitioners. This does not include 25 medical officers of the Russian garrison. There are 31 dentists. The number of unqualified practitioners is given as 14, so that Finland would seem to be in the happy position of being almost free from quacks.—*Medical Book News.*

Study of Infectious Diseases in the Philippines.—Drs. E. L. Tyzer and W. R. Brinkerhoff, who have been assisting Dr. W. T. Councilman, of Harvard University, in recent experiments into the causes of smallpox, will leave for Manila at once, to continue work there along the lines pursued at Harvard. Funds for the undertaking have been provided by popular subscription, and it is planned that the two doctors shall remain a year. Other tropical diseases, which are likely to be brought to this land through growing intercourse with the islands, will be considered also, with a view of preparing American physicians for their treatment.

Disinfection for German Libraries.—The Berlin municipal authorities have decided to make an attempt to exterminate the microbes in the public libraries, Prof. Koch having called attention to the danger of spreading infectious diseases through books loaned indiscriminately from libraries. A plan for attacking the microbes will be submitted to the Library Committee of the Municipal Council on Feb. 2. It is intended to adopt some method of disinfecting books after their use.

Pharmacologist.—The United States Civil Service Commission announces an examination on March 1, 1904, to secure eligibles from which to make certification to fill a vacancy in the position of pharmacologist (male) in the Bureau of Plant Industry, Department of Agriculture, at $1,800 per annum, and other similar vacancies as they may occur. Applicants will not be assembled for this examination. The person appointed to this position must be a man trained and equipped with the knowledge and experience necessary for isolating and handling poisonous and other active principles of plant origin. He must be trained in animal physiology and pharmacology, and must have had experience in studying by exact laboratory methods the effect exerted on the different animal functions by the active principles of plant origin. He should be familiar with the best forms of apparatus used in carrying on such experiments and should have abundant laboratory experience in making such investigations. He should be able to read at least French and German, in addition to English. Age limit, twenty years or over. This examination is open to all citizens of the United States who comply with the requirements. Competitors will be rated without regard to any consideration other than the qualifications shown in their examination papers, and eligibles will be certified strictly in accordance with the civil service law and rules. Persons who desire to compete should at once apply to the United States Civil Service Commission, Washington, D. C., for application Form 1312, which should be properly executed and filed with the Commission at Washington, with the material required, prior to the hour of closing business on March 1, 1904. In applying for this examination the exact title as given at the head of this announcement should be used in the application.

The Maryland Tuberculosis Congress.—Some alarming facts are brought home to Baltimoreans at the tuberculosis exposition, which opened last week in McCoy Hall, under the auspices of the Tuberculosis Commission of Maryland, conjointly with the State Board of Health of Maryland and the Maryland Public Health Association. If the observations of the health officials are correct, the pavements around Baltimore's City Hall and Courthouse are among the filthiest in the city, and the street cars are about as dirty as those to be found anywhere. The "City Hall Sputistics" are something that catches the eye of the visitor soon after entering the exposition. A reading of the chart is calculated to make a Baltimorean fairly blush when he remembers that the city has an anti-spitting law and the manner in which it is enforced. The "Courthouse Sputistics" are hung near those of the City Hall. Here is what is said of the City Hall pavements: In eight walks around the City Hall on eight different days, between the hours of 10 A.M. and 2 P.M., there were counted: Separate deposits of sputum—2013. Highest count was made on January 16, 1904—390. Lowest count was made on December 26, 1903 (bitter cold)—144. Average count—251.6. Filthiest spot—Holliday street front. In second degree disgusting—honor divided between southeast and southwest corners. And then this chart, on which is pasted a photograph of the new courthouse: In nine walks around the Courthouse on nine different days between the hours of 10 A.M. and 2 P.M., there were counted: Separate deposits of sputum—3,793. Highest count, on December 31, 1903—560. Lowest count, on December 26, 1903 (a bitter cold day)—235. Average—421.5. Filthiest spot—St. Paul street entrance. In the second degree disgusting—Calvert street entrance. Another chart at the Exposition refers to street cars in Baltimore. This information was also gathered by Drs. Fulton and Price, and the observations are to the effect that the motormen and conductors are among the biggest violators of the anti-spitting law. It reads as follows: Street-Car "Sputistics." 248 car rides; 3,156 passengers; 944 separate deposits of sputa; 4 sputa per car; 41 crowded cars; 125 counted deposits; 3 sputa per crowded car; 49 wet cars; 52 counted sputa on wet cars; 1 sputum per car; 90 cars crowded or wet; 177 counted sputa; 2 sputa on crowded or wet cars; 158 cars neither crowded nor wet; 817 separate deposits; 5.17 per car; 30 times spitting witnesses; 2 conductors seen to spit on cars; 5 motormen seen to spit on cars; pools are counted as on deposit; motormen are depositors of pools.

Gov. Edwin Warfield made the opening address, and among the others who spoke were Mayor McLane, Dr. William Osler and Mr. Frederick Hoffman of Newark, N. J. All urged upon the audience the necessity of taking steps to prevent the spread of tuberculosis, and advised all to visit the exposition. Dr. Lawrence F. Flick, of Philadelphia, lectured on "House Infection of Tuberculosis." Dr. Mazyck P. Ravenel, of Philadelphia, read a paper on "Bovine Tuberculosis a Factor in Human Tuberculosis." Dr. D. E. Salmon of Washington, spoke on "Some Observations on the Tuberculosis of America." The tent exhibit was among the most interesting in the hall. It showed a number of tents used by physicians in different parts of the country in treating their patients, and one was a model of the tents on Ward Island, used by the consumptives of New York, and made especially for the exposition by the patients. The Congress was a great success.

The History of Consumption.—Dr. William Osler addressed the final meeting of the Tuberculosis Exposition. The big auditorium in McCoy Hall was filled to the doors with ladies, students, physicians and lay-

men to hear "The History of Tuberculosis." He began with Hippocrates, the father of medicine, as he is commonly known, and came on down to modern times, with biographical, critical and explanatory comments. The Greeks, he said, knew of the disease, but were unable to treat it, for they did not know its cause. Galen, Dr. Osler said, was the first to recommend open-air life for consumptives as a means of recovery. The Romans early took advantage of this, for it is well known that they used to send their tuberculosis sick on long sea voyages to Egypt. Celsus was another great advocate of out-of-door habitation. Turning to France, Dr. Osler spoke particularly of Lænnec, the inventor of the stethoscope. Dr. Osler told some amusing anecdotes about Lænnec, who went to Paris early in life and there became a student of medicine. His great book on the discovery of the stethoscope was published about 1819. He is responsible for the theory of the unity of tuberculosis; that is, that the disease in all its forms has a common origin. Willeman, Dr. Osler said, was the first to prove by bovine inoculations that tuberculosis passes from man to cattle and from cattle to man. Then the great Koch, with his elaboration of this idea, was taken up. Dr. Osler passed around several valuable and rare volumes and, in closing, said: "Probably it would be too much to hope to get rid of tuberculosis entirely. But it has been unmistakably shown that it can be prevented, and some day—who can say?—there may be a way of guarding against it by vaccination. This means in a crude way has been tried on calves with some success. The best we can do is to use fully the means we can command for combating the disease, such as getting control of tenements and sweatshops, teaching cleanliness and care and enforcing laws of sanitation.

OBITUARY.

Dr. PHOEBE JANE BABCOCK WAIT died at her home, in New York, last week. She was born at Potter Hill, R. I., Sept. 30, 1838, and acquired her early education in the district schools, in which she was afterward a teacher. Later she entered Alfred University, receiving from it the degree of Bachelor of Arts and of Master of Arts. Subsequently she came to this city, and in 1863 was married to William B. Wait, Principal of the New York Institution for the Blind, who survives her. Entering upon the study of medicine in 1868, when women in that branch of science met with violent opposition, she became a student in the New York Medical College and Hospital for Women, and was graduated in 1871. Immediately upon her graduation she entered upon active practice, devoting a large part of her practice to the study of obstetrics. In 1880 she was elected to be Professor of Obstetrics in the New York Medical College and Hospital for Women, which chair she held for upward of twelve years, during part of which time she was also Dean of the college. In 1879 she received the diploma of the New York Ophthalmic Hospital and College.

Dr. GEORGE H. R. BENNET died of apoplexy at his home, 21 South Portland avenue, Brooklyn, on January 26, in the sixty-seventh year of his age. Dr. Bennet was the son of an old Brooklyn physician and was born in Brooklyn. He was graduated from the medical school of the New York University in 1860. He was a member of various local medical societies, the Brooklyn Medical Club and the Crescent Athletic Club, and at one time served as surgeon of the Twenty-third Regiment.

Dr. GEORGE THOMPSON died last Tuesday from old age. He was born in Belfast, Ireland, in 1817. He practised medicine in this city for forty years, most of the time in East Twentieth street. He gave up active work fifteen years ago.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, January 16.

THE CENTRALIZATION OF MEDICAL TEACHING IN LONDON—AN INTER-HOSPITAL WAR—THE LONDON POLYCLINIC—TUBERCULOSIS IN THE POSTAL SERVICE—THE PATHOLOGY OF CHRONIC ALCOHOLISM—PROGRESS OF CREMATION.

REFERENCE has been made in previous letters to the proposal to centralize the teaching of anatomy, physiology and the other sciences which form the foundations of medicine which at present are taught more or less efficiently in the twelve independent medical schools in which this metropolis rejoices. The scheme is taking practical shape, and already negotiations for the purchase of a suitable site are in progress. Unfortunately it seems to be considered necessary that the site of the proposed Institute of Medical Sciences should be in the near neighborhood of the existing local habitation of the University of London. This means that it will have to be found in South Kensington, one of the most expensive quarters in London. Not only will land be of great price there, but it will be difficult for students, who are not as a rule richly endowed with worldly goods, to find suitable lodgings within reasonable distance of the Institute. It is proposed that premises and equipment adequate for the instruction of 500 students in anatomy, physiology (including pharmacology), biology (zoology and botany), chemistry and physics should be provided. The total cost of the buildings is put at $800,000, while it is estimated that an annual expenditure of $102,500 for teaching will be necessary. Toward all this little or nothing has so far been subscribed by the public to whom a strong appeal was made not long ago by Lord Rosebery, Chancellor of the University, and the other principal officials of the University. It is almost hopeless to ask a British Government for substantial help in furtherance of such a scheme, and for some reason or another millionaires do not appear to find a stimulus to generosity—or self-advertisement—in the University of London. Yet there are here the makings of a university—particularly in the department of medicine—such as the world has hardly yet seen. The fact is, I believe, that there has been so much squabbling about trivialities and so much jealousy and narrow-mindedness among those who undertook the reconstitution of the University of London that people are disgusted with the whole thing. The struggle has been going on for nearly a score of years and is not yet finished. But it really seems as if the obstructives were about to be beaten all along the line, and London at last to have a living teaching university instead of a system of examining boards.

A triangular duel is now being carried on between St. Bartholomew's, King's College and the London hospitals. All three institutions want money badly, and each is angry with the other for asking help from the public. St. Bartholomew's is the oldest hospital in London, its foundation dating from the twelfth century. It is also the richest, having a revenue of half a million dollars a year. The other hospitals therefore profess great indignation that so wealthy an institution should stoop to send round the hat, and "queer their pitch," to use the language of other members of the mendicant fraternity. The authorities of King's College Hospital not long ago, intimated to those of St. Bartholomew's that if they persisted in the appeal they would do their utmost to spoil their chance. Last summer the London Hospital strained every nerve to forestall St. Bartholomew's in its attack on the public purse. All this is unedifying and likely to be detrimental to London

hospitals generally. St. Bartholomew's wants a trifle of $2,500,000 to rebuild the whole hospital, which is antiquated and inadequate to modern requirements. King's College Hospital wants a vast sum to enable it to migrate to South London where it is thought it will be more useful. It is very doubtful whether in either case the money will be forthcoming. Part of the opposition to the St. Bartholomew's scheme comes from one of our "yellow" journals, the *Daily Mail*, which, rightly or wrongly, is supposed to derive its inspiration from Sir Henry Burdette who poses here as the supreme and infallible authority on everything relating to hospitals. However this may be, someone who finds a mouthpiece in the *Mail* evidently wishes that the hospital should cease to exist, and be replaced by two smaller institutions in the country. I cannot think, however, that in a country so conservative of ancient institutions, so venerable a foundation will be allowed to perish. The medical staff—a body consisting of twenty-six of the most prominent members of the profession in London—are unanimous in urging that the hospital should be rebuilt on its present site, and the governors, after a good deal of persuasion, have virtually agreed to this course. A meeting is to be held on January 26 under the presidency of the Lord Mayor to arrange a plan of campaign for the purpose of raising the money required.

The London Polyclinic which owes its existence largely to the energy of Mr. Jonathan Hutchinson, is also in want of money. It has hitherto been mainly a place for the housing of specimens and pictures of out of the way diseases collected by Mr. Hutchinson, and for the demonstration of remarkable cases by that comprehensive specialist. It also published a journal which was practically an organ by means of which he kept the world enlightened as to his views on leprosy. The intellectual diet which he offered was good in its way, but it was not sufficiently varied for the average human digestion, and after a certain time surfeit necessarily followed. As in ancient times men got tired of hearing Aristides called the just, so here people have become weary of hearing the eminent surgeon speaking of himself. This of course is not the cause of the financial embarrassment of the institution that is officially put forward. Whatever be the explanation, it is a fact that the Polyclinic has failed to "draw," and its journal was a white elephant which cost it some three or four thousand dollars a year. Endeavors were made to get rid of this expensive luxury, but Mr. Hutchinson, who financed the institution, threatened to put up the shutters if this were done. To speak plainly, he has been to the Polyclinic like the Old Man of the Sea on the shoulders of Sinbad. On this account several of the men who took the most active part in starting it retired. The financial crisis became so acute a few months ago that the journal was discontinued. Now a *modus vivendi* seems to have been established. The journal has reappeared but in a much more modest form, and with considerable mitigation of the Hutchinsonian element. An appeal is made to the public for contributions and to the profession for a larger measure of support than it has hitherto given. The institution is unquestionably a useful one, but the truth is, it is not altogether popular with the profession. The hospitals look upon it as competing with them for cases, and the lectures have for the most part not been particularly attractive to general practitioners. If it should prove that the influences which have hitherto tended to paralyze its efficiency have ceased to be operative, the Polyclinic may yet have before it a career of great usefulness and prosperity.

For several years past efforts have been made to get the Postmaster General to take steps for the repression or mitigation of tuberculosis, which is assuming the proportions of a veritable scourge among the employees of the department. The staff in 1899 numbered 82,172, and in that year there were 62 deaths and 83 retirements due to consumption—a total loss of 145 persons. To-day the staff numbers over 179,000 and the incidence rate of phthisis among them has certainly not diminished; it may fairly be inferred, therefore, that from 300 to 350 persons yearly fall victims to the disease. It is naturally the indoor staff that suffers most; among them it is estimated that the loss must be at least 2 per 1,000 per annum. The amount of sickness may be reckoned at 4 per 1,000. To appreciate the significance of these figures it must be remembered that before admission all candidates must pass a strict medical examination. Yet the mortality among those selected lives is considerably higher than among equal numbers of people taken at random. The heads of the department have shown the usual apathy of officials in regard to the matter. Their attention was drawn to the prevalence of consumption among their employees some eight years ago. It was not till two years later that even the small step was taken of prohibiting spitting in the buildings of the department. Last year, after repeated representations had been made, orders were issued that war was to be made on dust and proper means of ventilation provided. This order, being the outcome of imperfect conviction on the part of its framers, was carried out in a most perfunctory manner. All post-office work is necessarily dusty, and the dust has never been really got rid of. Walls were treated by a dry cleaning process which simply removed the dust from one place to another; at the Central Office all the cleaning of walls and floors is done in the presence of the staff, who have thus a largely increased chance of inhaling the germ-laden dust. The mail bags, coming from all parts of the world—sometimes through infected areas,—gather dust of all kinds on their way and are never disinfected. The ordinance against spitting was practically ignored. In short, no proper precautions have ever been taken, and a part of the Central Office is called by the staff the "Cave of the Troglodytes," owing to its darkness and its want of ventilation. Some 300 persons work there in artificial light all day long and numbers of them have to be removed owing to the injury done to their health. Many of the provincial post offices are as bad or even worse. The evil is so grievous that the employes have now determined to erect sanatoria for themselves. They hope to obtain some help from the Postmaster-General, but they know how difficult it is to induce those in charge of the public money in this country to loosen their purse strings and they are prepared to do without assistance from the State. It will be a disgrace to the Government if such a state of things in one of its great departments is allowed to continue without any attempt at redress.

On January 12, Dr. Ford Robertson, Pathologist to the Scottish Asylums opened a discussion at the Society for the Study of Inebriety on the pathology of chronic alcoholism. He said that the experimental investigations of various workers had clearly shown that chronic alcohol poisoning had a very harmful action on the defensive mechanism of the body. In addition to the weakening of the general immunity, there was an impairment of the local defences, especially in the upper portion of the alimentary tract, by the direct action of the alcohol. The chronic catarrhal changes, at first due to the action of the alcohol, became intensified by bacterial action, and a condition of chronic toxic infection from the alimentary tract was gradually established. Consequently the individual gradually developed various other disorders, located in accordance with his pow-

ers of resistance and various accidental circumstances. With regard to the inimical action of alcohol on the race, Dr. Robertson maintained that in this country alcohol was at the present moment one of the most potent causes of genetic variation, as it was unquestionably of somatic variation, and that the incidence of disease dependent upon defective resisting power on the part of the individual was thereby enormously increased. If these views were in accord with the facts, it was plainly the duty of a nation to do everything in its power to remove from its environments every inimical condition to which there was imperfect adaptation. He entirely dissented from the doctrines of the Archdall Reid School in regard to the importance of "alcohol and disease" as causes of human evolution.

The prejudice against cremation is yielding slowly but steadily. Nine crematories are at present at work in England—at Woking, Golder's-green, Manchester, Glasgow, Liverpool, Hull, Darlington, Leicester and Birmingham. One is being erected at Ilford, and others are proposed in St. Pancras, and at Bradford and Newcastle. On an average 500 cremations have taken place in Great Britain yearly—about three hundred in London, and two hundred in the provinces. Ireland has not yet adopted the system, and the Cremation Act of last year does not apply to that country. Hull was the first city in this country to possess a municipal crematorium, and it was also the first place where such a building was erected in a cemetery. The idea of the advocates of cremation was to have all crematoria in churchyards. Strong opposition to this course was taken by some of the English bishops, but sanction has been given to the erection in the cemetery of the new crematorium at Ilford.

REGARDING THE OWNERSHIP OF THE NAME VALENTINE.

To the Editor of the MEDICAL NEWS:

DEAR SIR: A concern, styling itself the A. S. Valentine Chemical Company, recently sprung into existence, is advertising a preparation in the form of a capsule for which it claims scientific and wonderful value in the treatment of gonorrhea, its complications and sequelæ.

Investigation shows that: This A. S. Valentine Chemical Company is a corporation formed under the laws of the State of New Jersey, and that its incorporators are A. F. Evans, Frank L. Shelton and Nannie L. Shouse, all residents of Kansas City, Mo. This company has a small office at a pretentious address in New York City, which address it uses in its advertisements.

The alleged "literature" offered in these advertisements consists of some extraordinary assertions, contains no records of scientific investigation, no clinical reports and no signatures of physicians.

The capsule they sell is a gelatine-coated thick fluid, bearing the name "Benzol-Capsule Valentine." The contents of the capsule have been represented as "distilled and encapsuled by Valentine's special process."

As is admitted by the person in charge of the office, who is one of the directors, no person by the name of Valentine has ever been connected with the A. S. Valentine Chemical Company, nor has any person with this surname given it his or her consent to the use of this name.

Whatever may have influenced this concern to select the name Valentine as a part of its corporate name, the fact that Valentine is my name, and that I, by my writings, have brought this name prominently before the Medical Profession in connection with the study and treatment of gonorrhea, and kindred diseases, makes it incumbent upon me to prevent, as far as lies in my power, any deception of the Profession and the public by the misuse of my surname. It would be an injustice to my colleagues and to myself were I, by silence, to lend credence to the inference their advertising obviously suggests. In order, therefore, to protect the Profession, the laity and myself, I hereby beg to call attention to the following facts:

1. That I have, in all my writings on gonorrhea, its complications and sequelæ, emphatically expressed my conviction that no drug or combination of drugs administered internally can be a specific in the treatment of these diseases.

2. That no drug or combination of drugs given by the mouth can destroy gonococci.

3. That I do not know the contents of the capsules sold by these people, and that I certainly do not recommend them or any other secret preparation.

4. That neither I, nor any relative, nor any acquaintance of mine, is in any manner connected with the A. S. Valentine Chemical Company.

5. That on January 7, 1904, through my legal adviser, Henry C. Quinby, Esq., of this city, I formally requested the A. S. Valentine Chemical Company to desist from the use of the name Valentine, and upon their refusal I caused a petition for an injunction against their so doing to be prepared for filing in the Circuit Court of the United States.

On January 20, the counselor of the so-called Valentine Company had an interview with my legal adviser, Mr. Quinby, which resulted in the former unequivocally advising his clients to cease using the word Valentine in any manner whatever.

I will thank any of my colleagues to inform me of any violation of this promise, so that I may, for the sake of the public, the Profession, and my own sake, prosecute as vigorously as the best possible counsel and any sum of money can. Most respectfully,

FERD C. VALENTINE.

New York, Feb. 1, 1904.

THE PATHOLOGICAL EXHIBIT AT THE TUBERCULOSIS EXPOSITION, BALTIMORE.

To the Editor of the MEDICAL NEWS:

DEAR SIR: Probably the most significant, if not the most interesting, fact connected with the Tuberculosis Exposition held at the Johns Hopkins University from January 25 to February 1 was the remarkable interest shown by the public generally, especially the ladies, in viewing and studying the pathological exhibit.

This part of the exhibit was held in a room devoted exclusively to it, and contained wax models from the Hôpital Saint Louis, Paris; the Surgeon-General's Museum, Washington; the Chicago Health Department; Agricultural Department, Washington; Boston Health Department, Dr. Theobald Smith; University of Pennsylvania, Dr. Ravenel; Adirondacks Sanitarium Laboratory, Dr. Trudeau; Biochemic Laboratory, Washington, Dr. De Schweinitz; Columbian University, Dr. Salmon; College of Physicians and Surgeons, Baltimore, Drs. Stokes and L. K. Hirshberg; Johns Hopkins Medical School, Drs. Welch and McCallum.

It is estimated that fully thirty thousand persons, not including physicians and students, viewed this part of the exposition, most of them being ladies. The original intention was only to permit physicians and students in the pathological museum, but the public generally took the room by assault, and it was necessary to have a constant corps of demonstrators present to make the exhibit intelligible and bring its lesson home to the lay mind. On one day, Saturday, fully seven thousand per-

sons must have visited this room, as estimated by the writer, who was demonstrating there. Not more than five per cent. of these were students, not more than fifteen per cent. were men.

The exhibit of tubercle bacilli in culture tubes, the process of making tuberculin, the dead bacilli stained under the microscopes, and Dr. Trudeau's latest method of immunizing rabbits interested the spectators most. These things seem to have a more dramatic appeal to laymen than we, as physicians, ever realize. The questions asked, and the general interest evidenced, made it difficult at times to keep the crowds moving on in order to make room for others.

There were about eighty species and varieties of living tubercle bacilli shown upon many different kinds of media, including sheep's serum glycerin, glycerin bouillon, glycerin agar, glycerin gelatin, glycerin egg albumin, Dr. Salmon's new media, human blood serum glycerin, etc. The best of these were sent by Dr. Theobald Smith, Dr. Ravenel and Drs. De Schweinitz and Salmon. Perhaps the culture which attracted most attention was a lineal descendant of Koch's original culture made in 1882. This was transplanted by Dr. Trudeau, and unfortunately before the exhibit closed, became contaminated with a penicillium fungus, due, no doubt, to the shaking up it sustained.

The most complete exhibit of dried, powdered, emulsified, glycogen extracted bodies of the bacilli, tuberculinic acid, copper tuberculinate, tuberculin O and R, were shown by Dr. Trudeau.

About fifty accurately reproduced drawings of photomicrographs of all stages and examples of tuberculous conditions, very much enlarged, were hung about the walls of the room. These skilfully made drawings were made by Dr. Charles Potter, one of the Johns Hopkins Hospital artists.

The pathological conditions were shown grossly by a most complete series from the museum of the Johns Hopkins and Physicians and Surgeons' laboratories. These included about fifty-odd specimens of pulmonary tuberculosis in all stages, apical, miliary, caseous, cavernous, fibro-caseous calcareous, healed and bronchoglandular.

Scrofulous glands in all stages, both human and herbivorous. From fifteen to thirty specimens showed tuberculosis of the larynx. Several conditions of tuberculous pleurisy in cattle and human beings were shown. Miliary, conglomerate and solitary tuberculosis of the spleen and of the liver in Kaiserling's solution showed the original autopsy colors.

Three very rare examples of miliary and fused tubercles along the thoracic ducts were prominent in the exhibit. There were possibly ten or twelve jars each containing Kaiserling preparations of tuberculous pericarditis. Because of the publicity, the specimens of tuberculosis of the epididymis and ovaries were only shown privately. Bovine and human tuberculosis of the kidneys in various stages, one calcareous, together with tuberculous conditions of the ureters and bladder were presented. Tabes mesenterica and a perfect example of miliary tuberculosis of the omentum were much commented upon, especially a jar showing the large pendulous variety of tuberculous peritonitis. Miliary tubercles over the peritoneum were seen—probably ten different preparations, one of them sent by the University of Maryland.

Tuberculosis of the intestines was completely and clearly demonstrated by various ulcerated parts. One long stretch of intestine showing only two ulcers, one of which had perforated through the gut, causing death by a general peritonitis, another showing about two hundred shallow ulcers in a portion only 25 cm. long. Tuberculous appendicitis, colitis and duodenitis were all there. Two samples of solitary tubercles in the adrenal glands were interesting, one of which had not produced Addison's condition. Tuberculous spinal and cerebral meningitis; caseation in the basal ganglia of the brain, and another case showing a large mass of caseation in the cerebellum were representative of cerebral tuberculosis. Tuberculosis of the bones were shown by three preparations of resected white swellings of the knee-joint, hip-joint disease, six caries of the vertebræ, several at the eleventh and twelfth thoracic. Osteomyelitis of the sternum, caries of the inframaxillary bone.

The wax models from the Surgeon-General's Museum were representative more particularly of tuberculous skin conditions. Lupus in almost every stage and upon every part of the body was visible. Palms of the hands, soles of the feet, ankle, leg, arm, neck, face, cheeks, nose, lips, were all reproduced in these wax models, with life-like appearance. One interesting set of models showed the lips and nose much involved in one, and in another showed complete restoration of the parts by the ultra-violet rays after a long course of treatment.

LEONARD K. HIRSCHBERG.

SOCIETY PROCEEDINGS.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

Ninety-eighth Annual Meeting held at Albany, January 26, 27 and 28, 1904.

(Continued from Page 238.)

SECOND DAY—JANUARY 27TH.

The Submerged Tonsil.—Dr. Thomas Harris, of New York, spoke of the symptoms dependent upon the covered condition of the tonsil seen in certain persons in which the pillars of the fauces have united over it. Under these circumstances chronic infections are not unusual, as the function of the tonsil is to protect the throat from the microorganisms which inevitably find their way into the mouth, and the tonsil is unable properly to perform its function. The individuals with submerged tonsils are more likely to suffer from sore throats and various other infections in the back of the mouth and in the fauces than are those whose tonsils are in normal condition. He suggests therefore the use of a tonsil punch for the purpose of setting such tonsils free and enabling them to carry on their proper function.

Chronic Laryngitis.—Dr. Z. L. Leonard, of New York City, gave some illustrative cases showing the tendencies of certain individuals to suffer from chronic laryngitis. When this affection is common, respiration is not carried on as it should be and as a consequence infections of the lower pulmonary tract are likely to follow. Such patients are especially likely to contract tuberculosis and this fact must be constantly borne in mind and treatment must be as careful as possible in order to prevent such an undesirable result. Patients are very apt to consider their condition as not very serious and its gravity must be made very plain to them, since it is well known now that the tubercle bacillus is very commonly to be met with in our large cities and unless respiration is nearly normal, tuberculous infections are sure to take place.

Suppurative Otitis Media.—Dr. J. F. McCaw, of Watertown, N. Y., said that it is surprising how many physicians fail to appreciate the significance of a discharge from the ear. How often, when parents come to the otologist with a child suffering from chronic suppuration of the middle ear, does he not hear that

the family physician pronounced it only a running ear and said that the child would outgrow it. Only too often the disease outgrows the patient and it can never be trusted to continue benign for any length of time. Dr. McCaw does not consider that radical measures should be employed in every case of running ear, but he pleads for appropriate treatment at the hands of some one who knows the precise significance and will be ready to recognize the danger signal. All cases of chronic discharge from the ear which show signs of tension in the antrum should be operated upon.

Irritable Bladder in Women. Dr. R. L. Dickinson, of Brooklyn, said that the irritability of the bladder in females may be divided into various types, due to nervous conditions, chemical or mechanical influences, hyperemia or other pathological conditions. The more is known of the irritable bladder of females the more rare are frequency of urination and other irritable symptoms considered to be reflex. In very few cases is it considered to be due to the old cause so frequently appealed to, viz., a tipping forward of the womb. The most common form of irritable bladder is due to nervousness and may be consequent upon school examination, upon an attack of hysteria, or upon general nervous irritability. It will not infrequently be found that any unusual excitement causes certain nervous women to have a sort of bladder crisis as the result of their nervous condition. A simple excess in quantity of urine passed, due to drinking too large quantities of water, or to the superfluous amount of hysterical urine, may cause such nervous irritability. Other mechanical factors are prolapse of the bladder itself, or prolapse of the urethra or dilatation of the urethra. A not infrequent cause is masturbation. Infectious elements may enter into the problem and a trigonitis due most frequently to gonorrhea may be the cause. On the other hand, affections of the genital organs are in some cases followed by vesical irritability. Many women complain at their monthly periods of a certain amount of vesical irritability. At times local conditions, such as an inflamed meatus, or a urethritis may be the cause. The most important consideration in beginning treatment is to look for the cause of the condition. The quantity and quality of urine must be judged and such conditions as the caruncle of the urethra or chronic inflammation of Skene's glands must at once be looked for. When these are inflamed, tiny red spots are visible when the urethra is slightly turned out. At times these glands take on the form of retention cysts. Sometimes there are on each side of the urethra little urethral flaps, minute nymphæ, as Kelly has called them. These are not physiological barriers to infection, as has been said, but are true examples of partial prolapse of the urethra. Not infrequently it will be found that the gaping of meatus will admit the finger tip. Sometimes the meatus appears perfectly normal, when the patient is in the prostrate position, but the pathology of the situation will be recognized at once if the examination is made while she is standing up.

Treatment.—In cases of prolapse of the bladder this should be fixed. The upper portion of the bladder is more tolerant of stitches than its base. If the uterus seems to be giving any trouble because of tendency to prolapse it should be suspended at the same time. Occasionally patients complain that every time that they cough or sneeze or even laugh violently, there is a gush of urine. The old plastic operation of twisting the urethra on its axis, which used to be performed in these cases, did not always give satisfactory results. In recent years, paraffin has been injected alongside the urethra, and this has given much better satisfaction, while the procedure has so far been associated with no inconveniences or sequelæ.

Uterine Fibroids.—Dr. W. E. Ford, of Utica, in giving his experience of uterine fibroids, said that twenty years ago he saw many more of them than at present, not because they were actually more frequent, but because they had not been operated upon and there was an accumulation of them, while now of course every town has its own surgeon who can operate upon them without any hesitation. Dr. Ford has tried many ways and for a number of years employed electricity. This seemed to improve the general condition of the patient and not infrequently to cause small fibroid tumors at least to decrease in size. In some cases, however, no effect at all seemed to be produced. In one case there was a death in the use of the electric needle. This was due to infection from a gonorrheal salpingitis, which set up a rapidly fatal sepsis. He employed ergot in a certain proportion of cases, and while he found some improvement in the symptoms, especially in a decrease of her hemorrhage, from its use, he does not think that this ever made the tumor any smaller. At times, when the tumor is of the submucous variety, the contractions in the uterine wall set up by ergot, forced the tumor into the lumen of the uterus, and thus made it easier to remove. With regard to the tying of uterine arteries for the purpose of reducing the size of fibroids, Dr. Ford has not had any special success. The catching of the arteries is a difficult indefinite method without any satisfaction and involving considerable risk. Dr. Ford used thyroid extract in a number of cases, but does not think that there was ever any special benefit from it and does not think that this substance has any control over hemorrhage. He used adrenalin, however, with excellent results as regards hemorrhage. Now that uterine fibroids are usually smaller when they come under observation than before, operation is the most suitable method of treatment. Dr. Ford has operated sixty-one times in 15 cases, having to cut the tumor into pieces in removing it.

Treatment of Diffuse Septic Peritonitis.—Dr. Russell S. Fowler, of Brooklyn, gave the results of 100 cases of diffuse septic peritonitis treated by thorough drainage of the abdominal cavity with the head and trunk in an elevated position. No case was refused treatment no matter how desperate it seemed, and though these cases are usually considered hopeless, sixty-seven of the patients recovered. Most of the cases of general peritonitis followed rupture of the appendix. The technic of the method of treatment included the making of a small incision, only sufficient to enable the operator to get at the diseased parts, the isolation of the chronically inflamed region with laparotomy pads, and the washing out of the septic parts with peroxide and a saturated solution of bicarbonate of soda. After the foaming was over the peritoneal cavity was washed out with normal salt solution. All pockets of pus were opened up and flooded with hot saline solution. The intestines were not allowed to escape during any portion of the treatment. Drainage was made as perfect as possible. Usually a glass tube was inserted in a piece of rubber dam and wicks of gauze were carried down to the bottom of it so as to draw up any material that might gather in the pelvis and yet allow of the aspiration of the tube occasionally. If many pockets of pus were found throughout the abdominal cavity, from twelve to twenty wicks of gauze were carried into these. The patient's head and trunk were elevated at least one foot, sometimes more. This was accomplished by raising the upper end of the mattress over a special arrangement in the hospital or over

the back of a chair. All of the cases improved immediately, at least for the time being. The vomiting stopped, if there had been any, and gas was freely passed by the rectum. Only in three very septic cases was there failure of this improvement noted.

Asthenopia.—Dr. D. H. Wiesner, of New York, said that the complaint of weak eyes and of poor sight was becoming more and more prominent. This is partly due to the increased use of the eyes under artificial light, but it is also due to a general deterioration of the nervous system in the rush of life and the fierceness of competition in our cities. Weak eyes are not found so commonly in the country. The frequency of weak eyes can be noted from the number of signs of refracting opticians to be found on the streets. Besides these, at least 50 per cent. of the oculist's work is concerned with eye-strain. Under many hours of artificial light the ciliary muscle gives out. The most important part of treatment of these conditions is an improvement in the general nervous tone of the patient and the insistence on a better living environment.

Eye Muscles and Others.—Dr. Lucien Howe, of Buffalo, N. Y., demonstrated how the normal muscles of the body may be tested and their strength expressed in symbols. He then called attention to the fact that the strength of the muscles of the eye correspond to those of the body. He has made a series of observations upon soldiers stationed near Buffalo and found a distinct ratio existing between the ordinary muscularity and that of the eye muscles. It is important, when there is some defect in the musculature of the eye, to treat the patient by a general development of muscle tissue, which will eventually bring with it an improvement in the eye muscles also. If this should be accomplished there would be no need for so many tenotomies as there are at present and there would not be so many serious reflexes set up because of failure of muscle balance.

Diagnosis of Glaucoma.—Dr. D. B. St. John Roosa, of New York City, said that while specialists complain of encroachment upon their special fields by the general practitioner, this is not true of the eye specialist, and while for such conditions as cataract or strabismus it is the ophthalmologist who should see the case, there are many conditions of the eye that the general practitioner is bound to recognize or else serious harm will result. Glaucoma is one of these and the most important. It has an unfortunate name, since the greenish swelling implied by the name glaucoma, a greenish-grey tumor, is only in the last stage of the disease, and it should be waited for, will prove the loss of the patient's sight. Unfortunately, if not diagnosticated, it will cause the loss not alone of one, but usually of both eyes. The most important symptom of the disease is the increase in the tension of the eyeball. General practitioners should accustom themselves to the recognition of normal tension in the eye by the habit of palpating normal eyeballs.

Course of Glaucoma.—Patients suffering from this severe affection are usually past middle life and give a history of arthritic tendencies; they come to the physician with a watering eyeball, or with a red zone around the cornea. They complain of dim vision and pain, which is of very distressing character and sometimes gives rise to the mistaken diagnosis of neuralgia of the eye. There is no such thing as a neuralgia of the eye, in the ordinary sense of a neuralgic pain not due to some serious condition. It will be found that their cornea are insensitive. The eyeball will be found distinctly hard to the touch. If such a case is neglected, blindness is inevitable. The treatment needed for these cases is the insertion of some eserine solution of the strength of two grains to the ounce. This at once gives the patient some relief. If there is any further progress of the symptoms an irredectomy must be done. Some of the ideas with regard to glaucoma are needlessly confused by the extraordinary nomenclature which has gathered around the affection; there is acute, simple and chronic glaucoma, then fulminant, hemorrhagic, prodromal, evolutum, absolutum, and primary and secondary glaucoma. But these are the only terms that should be used.

Climate of Long Island.—Dr. W. H. Ross, of Brentwood, Long Island, called attention to the fact that while Long Island is often considered to be the home of marshes, malaria and mosquitoes, the actual state of affairs on the Island is very different. It consists mainly of a dry, sandy plain. Its nearness to the ocean makes it much cooler in summer time than New York City, or the regions lying farther inland. On the other hand, the ocean has during the winter time a tempering influence on the cold, so that the average cold is not nearly so severe as in New York City. The mortality of the Island is very low, compared to other parts of New York State, or of New Jersey, and it compares very favorably in this respect with the Berkshire Hills in Massachusetts. When the true climatic conditions that exist on Long Island come to be recognized, it will be used by New York physicians much more than at present as a place to which patients will be recommended in many chronic conditions. It is especially favorable for chronic nervous affections and for insomnia. Visitors are often surprised at how well they sleep and for how long, though this had been one of the symptoms giving them most bother before they came on the Island.

Placenta Previa.—Dr. Scully, of Rome, N. Y., discussed nine cases of placenta previa that he has had under observation, for one of them, which occurred quite recently, he was called in consultant practice and understood that the woman was bleeding very severely. When he reached the apartment he found the floor covered with blood and all the clothing wet with it. He found, however, that both child and placenta had been delivered and that the woman was bleeding no more. The placenta was wrapped over the child's head somewhat like a hood and had evidently been forced out in this position under the influence of active contractions of the uterus in a strong woman. This gives an excellent idea of how nature is sometimes able unassisted to overcome the danger from placenta previa. It shows, too, the necessity for active interference in order to secure delivery of the child if the mother is to be saved, for the only hope of cessation of bleeding is in the firm contraction of the uterus. Dr. Scully believes in podalic version in order to facilitate rapid extraction in these cases.

Treatment of Cancer by Its Own Toxin.—Dr. P. J. McCourt, of New York, described certain cases of cancer treated by means of toxins obtained from cancers removed from other individuals. A glycerinated product is used for this purpose and the dosage is by the mouth. The difficulty is, according to Dr. McCourt, the selection of the proper form of toxin. As far as possible the toxic material used must have been obtained from a cancer in the same stage as that which is under treatment. During the use of the remedy not much animal food must be consumed and all stimulants, especially malt liquors, must be avoided. All strong liquors become absolute poison. The result of the administration of this material is the occurrence of a critical diuresis, diaphoresis, diarrhea and erythema. The remedy must be employed about twice a day, in the morning and evening, when the stomach is empty. In mammary cancer and in uterine cancer good results have been obtained. This remedy

has proved also of good service in the treatment of lupus. It may be employed with decided advantage after operation to prevent the recurrence of cancer.

Radioactivity.—Dr. J. S. Wight, of Brooklyn, discussed recent researches in radioactivity and electricity with their bearing on radiotherapy and the legal status of these new remedies. With regard to radium he insisted on the possible good effects that would be obtained in malignant disease and in other forms of external affections. He also suggested the possibilities of a transmitted radioactivity proving useful in the treatment of internal affections. With regard to the Roentgen rays, he showed the possibility of using certain secondary radiations that are contained in the Roentgen rays, which promises to do away with the danger of burns and yet retain all the therapeutic activity of this peculiar source of energy. He considers that as yet medicine is only entering upon the discovery of a series of the therapeutic results of great importance in the employment of these new materials and forms of radiation. With regard to the legal status of their use he insisted that only those who are experts should be allowed to give evidence in trials where such remedies have been employed and suggested the possibilities of blackmail that are involved in injuries that may result or in supposed failures to cure. Dr. Wight suggested that the heating of radium had a definite effect upon its radioactivity, and that it seemed not improbable that the employment of heat would be an important adjunct in treatment by means of radium. He also suggested that any negative electric body, if held in the air becomes radioactive, and though this radioactivity gradually disappears afterward there are evident possibilities of the use of this form of energy without an expensive outfit such as might be required for large quantities of radium. Even rain drops become radioactive during their passage through the atmosphere. When this radioactivity exists on metals it disappears when the superficial surface of the metal is dissolved by means of acid. This seems to be a proof that it exists only on the outside of the radioactive bodies. A curious phenomenon is that the acid becomes radioactive, though it does not retain this property for a long time.

Mineral Waters and Radium.—In certain mineral waters a radioactive gas has been found. In so many different forms of mineral waters has this been true that it has come to be a general opinion that the radioactivity of mineral waters is the important element in their therapeutic effect. It has long been known that artificial mineral waters, though made to conform as closely as possible with the chemical contents of natural mineral waters, never act quite as efficiently, nor do the salts abstracted from mineral waters and then redissolved in water prove as efficient. It would seem that in the phenomena of radioactivity, there may come the explanation of a very vexed problem in therapeutics—the effect of natural mineral waters.

Lesions Around the Knee-joint. Dr. Nathan Jacobson, of Syracuse, said that there are a number of lesions around the knee-joint which may easily lead to confusion in diagnosis. One of these and perhaps the most important is acute osteomyelitis, which usually follows some trauma, but may not necessarily do so, and is mistaken not infrequently for acute rheumatism. He has found abscesses forming bone and cause the separation of large sequestra because of the formation of pus in cases where the beginning symptoms of the disease gave no idea of the seriousness of the affection. Besides osteomyelitis tuberculosis is of course, frequently around the knee-joint. One of Dr. Jacobson's recent cases was a tuberculous abscess at the head of the tibia, though there was no involvement of the knee-joint itself. There are certain lesions that seem to occur by preference near the knee-joint without known cause. One of these is sarcoma. It must not be forgotten that if these tumors are recognized sufficiently early and are not of an especially malignant variety, amputation high up will prove life-saving. Round-cell sarcomata have not a very favorable prognosis, however, recurring in spite of amputation. Spindle-cell sarcomata usually do not recur. In a recent case under Dr. Jacobson's care tuberculous affection of the femur presented most of the supposed pathognomonic features of sarcoma, including even fracture of the bone for a very slight cause, yet proved on careful pathological examination to have no malignant elements at all.

Surgical Cases in Albany.—Dr. Albert Vander Veer, of Albany, reported 615 surgical cases attended at the Albany Hospital during the year 1902 and the beginning of 1903. He found that with regard to fractures of the jaw, after having gone through all the supposed improvements of wiring and new-fangled splints of many minds, that the best method of treating these cases is by the application of an interdental splint. For this purpose a dentist is attached to the hospital staff and there is no doubt that patients have a greater degree of comfort and that these fractures heal sooner with less anxiety on the part of surgeon and patient, and with better results than under any other circumstances. Dr. Vander Veer considers that enlarged glands in the cervical region should be removed early. They constitute a focus of disease that may easily spread. Patients should be impressed with this idea. Otherwise enlarged cervical glands are allowed to remain and become the source of generalized infection, or later in life, of pulmonary consumption. Treatment, except eradication, is almost sure to be disappointing, and consequently it is better to advise radical measures. With regard to cancers Dr. Vander Veer has had excellent results by doing the complete operation, removing the glands in the axilla, as well as above the clavicle. In all cases of tumors of any considerable size the pectoralis major and minor muscles were also removed. With regard to sinuses of the gall-bladder region, after operative procedures, he has not had the difficulty in securing closure that so many surgeons find, because by dropping from three to five drops of pure carbolic acid into the sinus he has succeeded in causing them to close. In one operation done subsequent to a laparotomy that had been followed by hernia, one of the most serious complaints made by the patient before operation was of pain in the scar. This took the form of acute discomfort, as if she were being pricked by a needle. During the hernia operation a hypodermic needle that had broken off near the shoulder was found imbedded in the scar. It was no wonder that she had a pricking sensation. Nothing was said to the patient after the operation, and she left the hospital no wiser than before. After hernia operations, Dr. Vander Veer does not believe in the use of a truss, as it serves rather to weaken the abdominal wall at the point at which it is applied than to protect the intestines from protrusion.

Gunshot Wound of the Brain.—Dr. John A. Wyeth, of New York, described a case in which the patient was wounded by a bullet entering in the region of the forehead and evidently passing through the frontal lobes of the brain. It was thought that he was dead at first, and then that he would surely die, but the opening in the skull became plugged by granulation tissue and he recovered almost completely. There were no motor or special sense symptoms, though for a time the patient talked incoherently and had to be watched. There was considerable weakness of the right side, but no other special symptom. In operat-

ing the orbital plate was pierced in order to obtain drainage, and then recovery was without incident. All of his motor symptoms disappeared, but there has been a slight loss of intelligence. Considering that the operation was not done for several months after the accident, this seems to be an excellent result.

Tuberculous Myositis.—Dr. William B. Brinsmade, of Brooklyn, reported a case of injury to the leg on the outer side, which was followed after some time by swelling from the ankle almost up to the knee. This swelling was symmetrical and was evidently due to some pathological condition of the subcutaneous tissues. The skin was perfectly movable over the swelling. At first a sarcoma was suspected to be present, but a portion of the tumor was removed, and after careful examination proved to be typical tuberculous tissue.

Staphylococcus Aureus Infection.—Dr. Arthur G. Root, of Albany, reported some cases of *Staphylococcus aureus* infection, which had been observed in the industrial schools at Rochester. This microorganism often occurs in the skin, and may usually be found in the mouth, the nose and the ear. In the first case reported the patient suffered from a boil from which he seemed to have recovered entirely when about ten days afterward his right knee became swollen and painful. The swelling was not marked, but the tenderness was excessive. The temperature rose to 104° F. The case was diagnosed as acute rheumatism, but did not improve under the administration of the salicylates. After a time the lower portion of the thigh was found to be involved and an abscess in this situation was opened. Pus was found beneath the periosteum of the femur. The knee itself continued to be troublesome, and as the temperature was intensely septic, amputation finally had to be performed. The second patient had a run-around on the nail, which lasted for a considerable period, and finally led to some lymphangitis. One day his temperature rose to over 107° F. The sore around the finger-nail was then opened very completely and hot bichloride applications were made. Notwithstanding this the patient continued to have a chill every day and a temperature of 105 to 107° F. In fourteen days there were fifteen chills and the average highest temperature was 106° F. Careful examination of the blood was made and no plasmodia of malaria were found. Quinine produced no effect upon the temperature and the secretions were sent for examination to the Bender Laboratory in Albany. There a coccus was found growing like the staphylococcus and producing no color. It was considered to be the *Staphylococcus albus*, which very seldom, however, has anything like the virulence that seemed to be present in this case. After cultures of the microorganisms had been grown in the laboratory for ten days a certain amount of color appeared in them. After a time the golden yellow color was manifest.

Trachoma Treatment Without Operation.—Dr. Frank J. Parker, of New York, said that an impression prevails that all cases of trachoma need to be operated upon. This is not true and on the contrary most of them do better under careful non-operative treatment. Cases of follicular trachoma with soft lesions need to be operated. If trachoma is operated upon in the first stage operation is apt to be followed by hardening of the conjunctiva and irritation of the cornea with the production of pannus. This opinion, which was held by the older ophthalmologists, is now being generally accepted again. Where trachoma is under treatment it is important that special hygienic directions should be given the patient for the protection of others. The greatest care should be exercised especially as regard the hands. These must be cleaned often and the patient must be warned of the danger of communicating his affection. All patients suffering from trachoma must sleep alone and their handkerchiefs, towels, etc., must be absolutely personal. The patient's general condition is important. An outdoor life and good nutritious food must be advised. For local treatment the newer silver preparations, and especially argyrol, seems to be the most efficient.

Aphasia and Agraphia.—Dr. Edward E. Fisher, of New York, discussed sensory and motor aphasia, and especially their relation to agraphia and the possibility of the existence of a special center for writing. Sensory aphasia, he insisted, is often accompanied by some loss of the sense of the use of things, that is, a certain amount of apraxia. It is possible that there may be a special writing center, situated in the second frontal convolution. It seems much more probable, however, that the cases in which there was a supposed lesion of a special writing center were really affections of the association fibers of the various centers for speech. Professor Starr believes in the existence of a special writing center, but as people may learn to write with their teeth, or with their toes, either one of which parts is controlled by centers distant from the supposed writing center, the opinion does not seem probable. Dr. Joseph Collins says that there has never been a case of pure motor agraphia, and that there has always been some associated lesion. Hence there is no special writing center. With this opinion Dr. Fisher is in full accord.

Symposium on Abdominal Pain.

Abdominal Pain in General.—Dr. John H. Musser, of Philadelphia, considered especially abdominal pain consequent upon abnormal conditions of the stomach, liver and pancreas. With regard to pain in the abdomen, he insisted that where toxemia existed, the physician should be very wary of coming to conclusions entirely dependent on the complaints of the patient. Under these circumstances not unfrequently the patient is not able properly to locate or to tell the character of his pain. Spasm of the abdominal muscles always accompanies pain in the abdomen when it is severe, but will not be found in women with very distended abdomens. Rigidity is much less marked in women than in men, owing to the fact that their muscles are weaker. Toxemic conditions induce apathy. When rigidity is absent, if leucocytosis be present, too much stress must not be laid upon this fact since the leucocytosis is evidence of the existence of a serious condition. In athletes intense muscle spasm may take place and even a slight colic may produce board-like tightness of the abdominal muscles that would seem to indicate some mortal illness.

General Abdominal Pain. In intoxications, as in uremia, for instance, or, as the French say, in affections of the kidney, especially those connected with pregnancy, pain is apt to be a forerunner of other uremic symptoms. It is usually situated in the epigastrium, or in the right or left hypochondrium. It is not unusual to find that such nephritic conditions have been diagnosed as due to gastritis. Chronic gastritis may, however, give a sense of discomfort, though it must not be forgotten that there are many referred pains in this region and that the pancreas and the gall-bladder, as well as the pylorus, may all cause manifestations in the epigastrium. It used to be the custom to talk of hysteria as causing pain in the abdomen. The rôle of hysteria has become narrower, however, as diagnosis has become better, and it is a good maxim that the word neurosis covers a deficiency of diagnosis, whether that deficiency be due to the physician or to the present state of medicine. The more so-called hysteria Dr. Musser sees the more he thinks that there is some lesion present. It must not be forgotten that aneurism

not infrequently causes abdominal pain. Caries of the vertebræ may also cause it. The spondylitis deformans described by Marie may be a source of abdominal pain apparently because of the crowding and uncomfortable position of the abdominal organs which it causes. Certain neurotic conditions connected with neuritis, as for instance diaphragmatic rheumatism, these may give pains simulating perihepatitis. In a case under Dr. Musser's care not long since, the patient was operated upon for hemorrhoids, and when the diaphragmatic pleurisy developed for a time there was serious fear that perhaps infecting material had found its way along the portal veins of the liver and set up a serious condition around this organ.

Transferred Pains.—Pneumonia not infrequently causes pain in the abdomen and no pain in the thorax. This is especially true in children. It may simulate appendicitis, or at least acute peritonitis, and operations have even been performed with a mistaken diagnosis where subsequent investigation showed the existence of pneumonia. Sometimes, however, pneumonia is central and does not develop enough to be recognized for several days after the operation. Pericarditis may occasionally cause epigastric pain. The pain of pleurisy may also be transferred and apparently be much lower than it really is, or it may be reflected along nerves leading to abdominal muscles. Angina pectoris not infrequently causes pain that resembles an affection of the stomach. On the other hand, the congestion of the liver due to a failing heart may give rise to a suspicion of the presence of gall-stones. The liver becomes quite tender and may be also acutely painful. The pain of pyloric spasm may simulate gastralgia and may also be mistaken for cholelithiasis. Occasionally when pain is to be expected it may be absent. Gangrene, of course, may proceed absolutely without any pain in certain recently described cases. Intussusception has occurred as the result of paresis of the intestines from thrombosis of the abdominal veins, and yet, notwithstanding all these severe pathological conditions, no pain was present. The reason for all this was easy to see when operation was performed, as there was absolutely no peristalsis at all. The intestines were as limp and motionless as an autopsy, and there was the eery feeling of a living autopsy. Slapping and hot applications had no effect in bringing on peristalsis, and the patient died.

Pain in the Abdominal Walls.—Dr. Joseph D. Bryant, of New York, said that pain in the abdominal walls was always referred along to the distribution of the spinal nerves. This often causes a very pretty demonstration of the distribution of nerves in such diseases as Pott's disease. This affection is not infrequently missed. In three cases recently under Dr. Bryant's care, the spinal deformity was not marked at all, and in at least one case would not have been discovered, except by an expert. Certain localizations of pain have a definite significance. In the iliac region pain with tenderness and rigidity means mostly appendicitis. It must not be forgotten, however, that pain may occur in the abdominal walls without there necessarily being any organic affection beneath. There may be an intercostal neuralgia of the abdomen, even though there are no ribs, the nerves corresponding to those in the intercostal spaces being distributed to the muscles of the abdominal wall, as regularly as in the thoracic region. It would be possible for the reptilia, without any ribs, to have a series of intercostal neuralgic pains all along their bodies.

Pseudo-Appendicitis.—With regard to appendicitis it must not be forgotten that certain functional neurotic conditions may be of importance. A patient recently admitted to Bellevue, after an alcoholic debauch, claimed that he was suffering from all the subjective symptoms of appendicitis. There was even some slight fever and, of course, some rise in the pulse rate from the effects of the alcohol. He asked that his appendix be removed. There was already a scar in the appendicial region, and careful inquiry elicited the fact that his appendix had been removed at another hospital, when he was complaining of the same set of symptoms, though nothing wrong was found with it. A second operation had even been performed at a third hospital and now the patient was once more ready to be operated upon. In certain cases highly neurotic females are apt to be so taken by the idea of appendicitis as to simulate for themselves its symptoms. In one case operated upon it was found that the girl had never had an appendix. That organ was represented by a slight puckering of the cecum and nothing more. Some time afterward she developed the same set of symptoms for which she had originally been operated on, and the surgeon at another hospital was about to make an incision in the line of the old scar when he thought it better to consult the records of the previous hospital, when he found what was the true condition. The pleural nerves are distributed or at least are joined by branches to certain nerve fibers that are distributed over the upper part of the abdomen. This important fact must not be forgotten. Surgeons will find that they are greatly helped in making the diagnosis of conditions accompanied by abdominal pain and tenderness if they look up carefully the nerve supply of the part of the abdominal walls affected.

Intestinal Pain.—Dr. Frederick Holme Wiggin, of New York City, discussed the diagnosis of conditions which cause intestinal pain. He gave the details of the parts of the intestines and the special forms of pain caused by affections in them. Tenesmus characterizes an affection of the rectum or lower part of the colon, repeated colic is indicative of enterostenosis; appendiceal pain is localized in the right iliac fossa, duodenitis gives mucus in the stools with pain in the right hypochondrium. In children under four years of age sensitiveness along the course of the colon, accompanied by intense griping pains, is caused by enterocolitis. Definitely localized pain accompanied by increase of peristalsis, with the formation of a tumor due to distended coils of intestine, is indicative of occlusion of the intestine. Lead colic would seem to be easy enough to recognize, especially when the occupation is taken into account and the blue line can be found on the gums, yet it is the experince of almost every surgeon to find occasionally that patients are supposed to be suffering from some other intestinal condition when it is really lead colic. Tuberculous peritonitis would seem to be reasonably easy of recognition, especially when it is remembered that before the occurrence of ascites enlarged glands may sometimes be felt in the abdomen and the condition is always accompanied by a gradually growing discomfort. It sometimes happens nevertheless that this condition develops so insidiously that when young patients are brought to the surgeon the ascites is the principal symptom. Most of the suddenly developing painful conditions referred to in the intestines require immediate operative interference. On the other band, not all sudden pains are appendicitis. Typhoid fever has been mistaken on a number of occasions for appendicitis, and the differential diagnostic signs must be borne in mind. In typhoid fever the temperature runs high, the pulse is usually low as compared to the amount of temperature, and there is a low leucocyte count. In appendicitis the fever is usually not marked, the pulse is high, and the leucocyte count is one of the characteristic signs of the condition, the white cells being

very frequently increased to twice or three times their ordinary number.

Pneumonia and Appendicitis.—There might seem to be no possible connection between pneumonia and appendicitis, and no possibility of mistaking one for the other. As a matter of fact, however, pneumonia not infrequently causes an acute pain in the abdominal region. Pneumonia of the right lower lobe may by reflex action cause pain in the lower right quadrant of the abdomen that may easily be mistaken for appendicitis, as the pulse and temperature are sure to remain high; operations have even been performed, but as pneumonia patients are not good subjects for operations, the result is usually fatal. The best differential sign is the pulse respiration ratio. If the respirations are increased more than they should be considering the height of the pulse then there must always be suspicion of pneumonia involvement.

Undigested Symptoms.—Dr. Robert F. Weir, of New York, said that a distinguished financier remarked, not long ago, that the stock market was all right, but that there were a number of undigested securities. A similar remark might be made with regard to the pain symptoms of abdominal conditions. Our knowledge of diagnosis is all right, but there are a number of undigested symptoms whose exact value must yet be determined. It is extremely difficult for the surgeon to decide not only what to do, but when to do it, and most important of all for him to decide when not to wait. As a rule the surgeon must either make his diagnosis and then the decision as to operation from that, or else he must make an exploratory laparotomy. There is no doubt that often he does not know exactly what the condition is, yet he must conclude as to the advisability of operation. Formerly the surgeon was much more interested in the lower half of the abdomen. Now it is the upper half that is attracting attention. There are a number of important organs, any one of which may become affected in such a way as to require surgical intervention. Besides the gall-bladder and its manifold ills there is always the question of perforation of the stomach or of the duodenum, or of the various forms of pancreatic disease. Besides McBurney's point, with regard to which something will have to be said later, there is Mayo Robson's point, one inch above and to the right of the umbilicus, at which tenderness and pain means an affection of the gall-bladder, usually the presence of calculi in that viscus and subsequent infection. Besides the gall-bladder, however, in recent years the pancreas has come to attract much attention, and not infrequently it happens that for acute infections of the pancreas, the surgeon only finds them when he has operated for something else. With regard to the upper abdomen, it must be remembered that the pains of appendicitis may be reflected upward or those of pleurisy downward, simulating an affection in the upper portion of the abdomen that does not really exist. Dr. Weir considers that the sign suggested by Dr. Eliot, of New York, may prove helpful to surgeons in the recognition of affections of the pancreas. Ordinarily, if the hands are placed upon the patient's lower ribs, the thumbs inward along the costal arches and pressure is made, the ribs will yield one-half an inch to an inch. If there is trouble in the liver or in the pancreas this will not occur, but there will be resistance to the inward pressure and considerable complaint from the patient. Dr. Weir has found this to be true in a number of cases. On the other hand, Dr. Eliot has destroyed the illusions which exist that there is no leucocytosis in pancreatic disease. This makes it more difficult for the surgeon to recognize the condition. Dr. Weir has not found Head's discoveries of much value in practical diagnosis. The areas mapped out by him are undoubtedly connected with the organs he suggests, but in practice this set of symptoms does not furnish sufficient basis for the justification of operation. He does not consider that the ordinary location of Burney's point is as absolute as it is sometimes thought to be. Instead of the point midway between the anterior superior spine and the umbilicus, he has found in a number of cases that the point of tenderness is midway between the umbilicus and the end of the outer third of Poupart's ligament. This will bring it considerably below the ordinary location of McBurney's point. He has discussed this subject with Dr. McBurney himself, who considers that too absolute location must not be insisted on. With regard to palpation of the appendix Dr. Weir does not consider with Dr. Edebohls that this organ can be palpated through the abdominal wall, but in thin subjects, in cases of chronic thickening of the appendix, if, while the surgeon's fingers are pressed into the right iliac region over the appendix, while the patient is asked to lift up the right leg, the organ may be felt. The reason, of course, is not far to seek, as the psoas muscle in its contraction presses the appendix up against the downward pressure of the finger. In children Dr. Weir considers that it is advisable to sweep with the finger in the rectum over the right iliac region in order to recognize the condition that exists there.

Third Day—January 28th.

Recurring Membranous Stomatitis.—Dr. Lewis E. Blair, of Albany, reported a case in which there was a membranous affection beginning in the throat and gradually spreading over the mouth, coming on in subsequent attacks and on one occasion affecting all the visible mucous membranes. At first there was the appearance of simple ulceration followed by the formation of membrane within the mouth and then, as this got better, by the appearance of various lesions on the skin. This patient had a series of these attacks, the first relapse being very severe and occurring a year later, a third attack somewhat mild in character some months afterward, and a fourth attack, the severest of all, lasting six weeks. In this attack nearly all the mucous surface of the fauces, the pharynx and the mouth were covered. Even the palate, except the uvula, the tongue was so swollen as to make articulation very difficult. There were mucomembranous patches on the anus and in the urethra. The subsequent skin lesions began as erythema, then became vesicular in character, the fluid contents, however, were somewhat bloody and giving the appearance of hemorrhagic smallpox.

Skin Eruption.—This took the form of Hebra's erythema exudativum multiforme and ran through its stages, different groups occurring successively; while certain of the erythematous patches were in process of cure this gave the appearance of erythema iris. Oleate of mercury was employed as a salve on the body in one or two places, and wherever it was used the eruptions were especially severe. During the course of his severest attack, a troublesome bronchitis developed. This was considered to be a manifestation on the mucous membranes of the same conditions noted on the skin. Just when this was thought to be getting better a wandering pneumonia set in which lasted for a considerable period. Extensive desquamation took place, and as most of the skin had been involved this also lasted a long time. The secretions were examined bacteriologically three times by Dr. Blumer, who found in them only cocci, mainly staphylococci.

Optometry Bill.—Dr. Lucien Howe, of Buffalo, introduced a resolution instructing the legislative committee to oppose the passage of the so-called optometry

bill, which permitted the licensing of physicians. This practically put the delicate business of treating eyes suffering from refractive errors in the hands of uneducated men, who knew nothing, except the mere empiric details of fitting glasses. There was already sufficient abuse in this matter without its being licensed by law and the passage of the bill should be prevented. It was hoped, too, that this action of the New York State Medical Society would make physicians realize that they must not encourage its passage in any way.

Hospital Car.—Dr. W. W. Sanford, of New York, said that the necessity for having a car specially arranged for the reception and treatment of persons injured on railroads was now very clear. During the last few weeks three sad accidents followed by appalling loss of life and severe injuries had emphasized this necessity. Experiments had been made in this direction and it was found that an ordinary baggage car so arranged that the baggage compartment served as the operating room or rather the reception ward, while the rest of the combination car served for cots, made an emergency hospital car of a satisfactory kind. It was important, however, that railroads should not trust their injured to chance, and that there should be deliberate arrangements made for immediate aid to the injured after accidents.

Special Hospital Car.—One of the railroads has recently given an order for the construction of a special hospital car sixty feet long, divided into two compartments respectively, forty and twenty feet each. The twenty-foot compartment is meant to serve as an operating room, and is to be finished with attention to every modern surgical aseptic detail. The inside of the car is to be of hard wood that will stand thorough washing, and the floor is to be constructed of rubber tiling flexible enough to yield somewhat to the motion of the car, and yet be hard enough to secure a thoroughly clean floor. All the arrangements within the car are to be of glass and metal so as to stand cleansing, and it is to be separated from the other compartment by glass doors. A special conductor with physician and nurses are to be ready to occupy this whenever needed, and it is to be kept standing on a special track, so that it can be hurried immediately to the scene of an accident. When it is recalled that during the recent accidents men and women died in barns and cabins, and sometimes by the roadside, with no other help often for hours, except a physician who had himself barely escaped with his life, it is easy to understand how much this hospital car will bring of alleviation for suffering. Every railroad in the country should have one.

Symposium on Nephritis.

Pathology of Renal Decapsulation.—Dr. William Murray, of Brooklyn, read for Dr. J. M. Van Cott, of Brooklyn, a paper on renal decapsulation from the pathologist's point of view. Dr. Van Cott described the renal circulation and insisted on the points with regard to it that seemed to make it impossible for renal decapsulation to make any change in the circulation. Virchow and Cohnheim showed that whenever the renal arteries were thrombosed, whether from oligemia or any other cause, the consequence always was a series of depressed cicatrices. The cortex of the kidney did not regenerate, and the capsule became adherent over the depressed areas and thickened while strands of connective tissue from it dipped into the substance of the kidney. When the kidney circulation is interfered with, either by the tying of the artery or the vein, swelling of the kidney takes place. This is due to the fact that the circulation from the capsule brings blood into the kidney, but not in sufficient force to carry it through the kidney substance. Whenever the capsule is removed and the blood vessels ligated, this swelling does not take place. The very fact of the removal of the capsule then would seem to hamper the aid that might be furnished a deceased kidney from this source.

Restoration of Kidney Substance.—It has always been a question whether the kidney substance would regenerate, and by far the great majority of opinions have been against any such regeneration. It is certainly not to be expected that the removal of the fibrous capsule and the adhesion of the fatty capsule of the kidney would bring relief. All the circulation in the fatty capsule is away from the kidney. Besides, when the capsule becomes adherent there is always serious injury to the cortex, produced because adhesions are formed by means of connective tissue, and during the course of contraction, this always interferes with the nutrition of parenchymatous structures near it, and consequently injures them seriously. As a matter of fact, one would expect a sclerotic condition to be set up in the cortex of a decapsulated kidney.

Causes of Chronic Nephritis.—The ordinarily accepted causes of chronic nephritis are not of a nature that would make one expect relief from decapsulation of the kidney, even though, as is claimed on theoretic ground, there should be an increase of the circulation secured by this means. Chronic nephritis is not an affection of the kidney alone, or at least is not considered to be primary to the kidney. It is always a manifestation of symptoms of general disturbance of the organism. It is due either to the presence of toxins in the blood which the kidney tries to eliminate and proves inadequate to the task, or to a connective tissue hyperplasia, beginning in the blood vessels and spreading to the tissues between the cells of the kidney. In neither of these cases could relief be expected from increased blood supply, even if this should be obtained. If there is an increased blood supply that brings with it more toxins than before, while the previons amount of toxins were causing destruction of renal tissue, the last state will be worse than the first. If there is already a tendency for sclerosis of blood vessels not much relief would be afforded by other blood vessels sharing this same tendency, because the arteries all over the body are thus affected.

Experimental Evidence.—Dr. Van Cott and Dr. Murray removed the capsules from the kidneys of cats in order to ascertain the result. Cats were chosen because these animals are especially resistant to infection. In some cases the capsules were simply stripped from the kidneys and then the organ put back. In others the kidney was made fast between the layers of muscle at the back, in order, if possible, to secure better adhesions, and consequently a better blood supply. In all of these the capsule was regenerated and the new fibrous tissue envelope was thicker than before, and sent down projecting strands into the kidney substance. In one case a cat was found apparently suffering from kidney disease, at least the animal was in bad general condition, and there were albumin and casts in the urine and at operation a large white kidney was found. This animal, however, was not improved by the operation.

Surgical Treatment of Nephritis.—Dr. Willis G. Macdonald, of Albany, said that certain forms of nephritis, as for instance those due to calculi, and to a movable kidney, can certainly be benefited by proper operations. All surgeons who have operated on movable kidneys know that such operations are followed by the disappearance of casts and albumin. It seems probable, however, that the symptomatic nephritis, accompanied by low specific gravity of the urine, and non-toxic urine would not be affected by operation. The true toxic

nephritis, also, such as are due to alcohol, ether, etc., are not encouraging subjects for operation.

Renal Tension.—In certain of the infectious diseases irritation of the kidney substance sometimes causes an intense hyperemic congestion of the kidney. Surrounded as it is by the unyielding fibrous capsule, the secreting substance of the kidney is subjected to pressure which may prevent its proper action. Under these circumstances anuria is likely to set in, or at least a very great diminution of the quantity of urine, with symptoms of uremia. Reginald Harrison, the English surgeon, has spoken of this condition as glaucoma of the kidney. He suggests the splitting of the fibrous capsule in order to relieve the tension, and in a number of reported cases, has brought decided relief in patients who seemed to be doomed. There is no doubt that this form of operation upon acute kidney disease is effective. Surgery has demonstrated the possible benefits it may confer upon nephritis, and there is hope that the surgical horizon may prove to be even wider than has been taught.

Medical Treatment of Nephritis.—Dr. Beverly Robinson, of New York, said that the main principle of the treatment of chronic nephritis, or of the acute exacerbations of chronic nephritis, which constitute the principal source of kidney disease that comes for treatment, is to supplement the action of the kidneys by means of the skin and bowels. For this purpose patients must be advised to sleep between woolen blankets and to wear a long woolen nightshirt. It is always ill-advised for them to wear linen next to the skin. Where they are passing but small quantities of urine, a milk diet is very advisable, though the insistence on this must not pass the limit of common sense and experience. Large quantities of water are advisable, and if this is from some slightly alkaline spring, so much the better. In order to keep the skin active Dr. Robinson has found the wet pack better than almost any other form of treatment. Where there is any complaint of a feeling of discomfort in the kidney region particularly, and in most other cases of acute exacerbations of kidney disease, the application of dry cups over the loins is important. Next to this is the use of high rectal irrigation, with Kemp's tubes, which promotes diuresis, as well as tempting evacuation of the bowels. When symptoms are severe and the patient is not very strong, Dr. Robinson does not believe in the use of pilocarpine, as it may set up an acute bronchitis and produce excessive secretion, with consequent serious edema of the lungs.

Drug Treatment.—Dr. Robinson has found nitroglycerin of great benefit in many cases, and has been especially encouraged by the effects of the old-fashioned sweet spirits of niter, which give good results without any complications. With regard to the severer forms, in which uremic coma is threatening or convulsions are occurring, bleeding followed by infusion of salt solution is the indication, and where the convulsive symptoms are severe, inhalations of chloroform should be used. Though many consider that morphine should be employed in nephritic seizures, Dr. Robinson does not consider it advisable unless the seizures are very frequent, or in certain cases of puerperal nephritis. The inhalation of oxygen often seems to do good. Nausea consequent upon nephritis, will often be relieved by doses of Kirschwasser, which is a dry alcohol containing some prussic acid from peach kernels. For diarrhea prolonged irrigation of the bowels with hot saline solution seems to be the best. For the general treatment of the disease, potassium iodide, as employed by Ringer, often seems to be effective. With regard to morphine, if the pupil is contracted it should never be used. If it is dilated or normal morphine may be employed.

Edebohls' Operation.—In discussing the papers, Dr. De Lancey Rochester, of Buffalo, said that many cases of nephritis can be treated so successfully by means of medical measures that it is a mistake to subject such a patient in his weakened condition to ether and the knife. The medical man will never fail to relieve the nephritic symptoms by proper medical treatment, and especially local treatment in the loins. Dr. Rochester believes firmly in the use of hot sweats by means of heated air at home, even in the poorest house. All that is needed is the elbow of a stove pipe and an alcohol lamp. Pylocarpine hypodermically has in minute doses always done good work in Dr. Rochester's hands. It should be followed immediately by a hot air bath. Dr. Rochester has seen nephritis following diphtheria become entirely well after six years of care, and has another case under observation where, though the nephritis is seventeen years old, the patient has not much discomfort when directions are followed.

Popular Idea of Bright's Disease.—Dr. Samuel V. Ward, of Albany, said that he is afraid of pylocarpine, but believes in absolute rest and external warmth in the treatment of nephritis. The popular idea of Bright's disease is that it is an absolutely fatal disease within a year or two. Every physician has cases under observation, in which casts and albumin have been in the urine for ten, fifteen or twenty years. These patients are well for all practical purposes, except as regards their power of endurance. For the general treatment of nephritis, Dr. Ward has found arsenic and iron better than all other drugs put together.

SOCIETY OF THE ALUMNI OF CITY HOSPITAL.

One Hundred and Tenth Regular Meeting, December 9, 1903.

The Vice-President, Alexander Lyle, M.D., in the Chair.

Case of Carcinoma Recurring in the Pleura Two Years After Breast Amputation.—Dr. B. H. Wells reported this case. The patient was an unmarried woman, forty-five years old, who, in November, 1901, noticed a small, hard nodule in the lower outer quadrant of the right breast. It was not more than a half inch in diameter. The skin, on being moved over the tumor, showed slight dimpling. It was not adherent to the fascia—was freely movable. The axillary glands were not involved, and the general condition was good. A radical operation was done, the greater part of the pectoral muscles being removed, together with entire axillary contents. Recovery was uneventful. Dr. Jeffries, pathologist to the Polyclinic Hospital, reported that at no place around the periphery of the mass was any carcinomatous tissue to be found. The glands and lymphatic trunks were likewise free from involvement. The tumor proved to be an ordinary carcinoma. Running straight down from it was a slender whitish thread, so fine that it could hardly be seen with the naked eye. It led apparently directly to the pectoral fascia. Under the microscope, this thread proved to be a line of carcinoma cells that coursed down through this fascia. Evidently there was one small lymphatic vessel infected. Instead of going to the axillary glands, it passed apparently between the ribs. The patient remained in good health from Nov. 10, 1901, to October 8, 1903. On that date she suddenly developed signs of pleurisy over the lower portion of the right lung. There was no external sign of a recurrence of the carcinoma. In two days the right pleural sac was filled with fluid. A prom-

inent clinician did not think at this time that there was recurrence of the cancer. Paracentisis gave temporary relief, 37 ounces of a straw-colored fluid which coagulated into a thin jelly after being removed. It showed a moderate number of round white cells varying from one-third to five times the diameter of a red blood cell. In some no nucleus was visible. Some had a single nucleus, in others it was multiple. On October 13 the fluid removed was dark red. The patient was evidently failing rapidly, and on November 13 she died of recurrence. This case is of vital interest, because of the relationship of the pathological report to the prognosis. It is also very unusual to find the axillary glands absolutely free from involvement. The lymphatic drainage was evidently of artypical type.

Dr. A. Lyle said that he had so frequently seen recurrence in the manner described, that in removing the breast, he now always dissects from the axilla downward, instead of beginning from the lower portion and dissecting upward. The theory supporting this procedure is that it may be possible to squeeze some of the carcinoma cells through the lymphatics if the dissection begun from below.

Dr. P. A. Potter continued the report of a case which he had related in part at a previous meeting. The patient was a woman twenty-three years old, who had had a miscarriage the second or third month, and was again pregnant in the sixth month. A threatened abortion was stopped by the usual methods. Two days later the temperature rose to 105° F., no other symptoms being present. The temperature lasted for ten days. Five days after her temperature had been normal, it again rose, this time accompanied with much pain in the bones. On the strength of this, the diagnosis of grip was made. Again she recovered after five days without any focal symptoms. Later she had another attack of a similar nature. A physician and a surgeon from New York, both of high repute, were unable to make a diagnosis. It was finally remembered that she had a slight cystitis after an attack of typhoid five years ago. So the bladder was catheterized. The pathologist reported that it was undoubtedly a case of pus in the pelvis of the kidney. There were no renal or bladder symptoms. Under large quantities of water and full doses of urotropin, the temperature went down and the patient has been well since.

Dr. B. H. Wells said that it was remarkable that the patient did not present some local bladder symptoms. Save for this he had recently had a similar case which recovered under urotropin.

Hyperthyroidization Following Curettage.—Dr. B. H. Wells reported this case. A full report of this case will appear in a subsequent issue of The Medical News. The case was that of a woman, fifty-three years old, who had for six months suffered from metrorrhagia. Hemorrhage at this age is suggestive of carcinoma and immediate steps were taken to obtain a specimen for microscopic examination. The patient was nervous, thin and poorly nourished. Her thyroid was enlarged and she had suffered at times from extreme attacks of tachycardia. Before operation the pulse was 110: There was no exophthalmos. Dr. Bennett gave gas and ether. The pathological report was that the scrapings were not malignant. For two days the temperature was normal, progress being uneventful. Suddenly, about the fiftieth hour, she developed a pulse of 190 and a temperature of 105.5° F. The tongue became dry, and a violent diarrhea with brown movements subvened Her stomach became so irritable that food could scarcely be retained. On the fifth day of the attack, the blood showed no reaction for typhoid. The thyroid had meanwhile become very markedly enlarged. It transmitted to the hand a distinct thrill and expansile pulsation. From this time on she very slowly improved. The pulse and temperature having reached normal. No symptoms were referable to the uterus. The curettage was done aseptically and the fever was not in any way connected with the operation.

Dr. J. W. D. Maury said that the conditions described by Dr. Wells resembled closely the train of symptoms which frequently follow operations for the removal of the sympathetic ganglia or resection of the thyroid in Graves' disease, except that very few cases of recovery are recorded. The symptoms in this case differ also from those ordinarily described in the tardiness of their development. Cases reported by Kocher, Curtis and others show an average latent period of from twelve to thirty-four hours.

Dr. Charles G. Child, Jr., had a similar case last summer which terminated fatally. A multipara, forty years of age, was admitted to his service at the Polyclinic Hospital in July. She was sent in because of constant flooding. This had been almost continuous for the past six months. Although much run down, her resisting powers seemed sufficient to justify operation. She was found upon examination to have a large uterus, which had apparently undergone general fibrosis. It was hard, about six times its normal size, and the os was patulous. She had a mild degree of exophthalmos. Her pulse on admission was 110, and there was a slight enlargement of the thyroid. Vaginal hysterectomy was performed, the operation lasting a half hour. It was absolutely uncomplicated. No vomiting accompanied return to consciousness, and her condition was normal until the fourth day, when the thermometer in the ward reached a hundred—a prostrating heat wave having come on. Immediately her pulse shot up to 130, and her temperature to 104° F. Her husband said that she was always affected in this way during the extreme heat of summer, and the effort was made to ascribe her condition to this factor. On the evening of the fourth day, however, she became unconscious and remained in a semiconscious state for five days. Her highest temperature was 104.3 and her maximum pulse 184. She was with difficulty roused to take nourishment. On the tenth day after operation she died in coma. Smears from the intestines, the kidneys and the spleen showed no infection of the abdominal cavity whatsoever.

Dr. J. F. Terriberry said that the uterine hemorrhage was doubtless due to excessive vasomotor paresis from toxemia of thyroid origin, aided by the abnormal state of the endometrium. Bowel fluxes and other evidences of excessive gland secretion are frequent in Graves' disease, but hemorrhagic sweatings are rare. It would be interesting to know whether these patients perspire at the time of the bloody flux.

Dr. J. W. D. Maury said that there is no way of determining whether symptoms of acute thyroidism are to develop in a given case of mild exophthalmic goiter which presents itself for operation. They occur in only a small per cent. of such patients. If the sympathetic ganglia or the thyroid are operated on, the symptoms generally develop in twenty-four hours. In the present state of perplexity of the subject, both Dr. Wells and Dr. Child were entirely justified in operating, because there is no way of foretelling this fatal postoperative sequel.

Some External Diseases of the Eye Due to Rheumatism.—Dr. Richard Kalish said that the purpose of this paper was to call attention to those forms of diseases of the eye distinctly rheumatic in their origin, to which this causative factor had not yet been ascribed. Many patients with blear-eyes, distorted lids, and lost eyelashes, spotted corneæ and lessened sight

would have recovered with uninjured or but slightly damaged eyes had the direct cause been known. He took a very emphatic position in disbelieving the fantastic theory that rheumatic diseases are due to micro-organisms. The external diseases of the eye due to rheumatism are marginal blepharitis of the young adult, recurrent hordeoli, or styes, recurrent chalaza, circumscribed bulbar conjunctivitis, limited circumscribed bulbar conjunctivitis and striated keratitis. Marginal blepharitis is usually associated with the so-called strumous diathesis. This is the form which is most familiar to us, and which occurs in children up to the age of puberty. The rheumatic variety differs from this in that it occurs in early adult life; in that it is always bilateral, and in that there is no involvement of adjacent structures. Furthermore sight is rarely interfered with to any extent. The author closed by expressing the belief that if the suggestions made in his paper were more generally recognized by the profession, there would be fewer cases of chronically injured eyes. (This paper will appear in full in a subsequent issue of THE MEDICAL NEWS).

Dr. D. H. Wiesner, in opening the discussion, said that the Society certainly was greatly indebted to Dr. Kalish for a most useful and interesting paper. Blepharitis, conjunctivitis, hordeolum, chalazion and the other rarer conditions described are, it is true, all discoursed upon by the books, but it is unquestioned that no author has as yet assigned their cause as exclusively as has Dr. Kalish, to rheumatism. The usual teaching has been that marginal blepharitis is generally due to bad hygienic surroundings. This would seem to have been proved by the fact that improvement often is very rapid in cases of young children, who are often cured by being placed in better hygienic surroundings. In early adult life, however, eliminating bad hygiene and correcting refractive or muscular errors, do not by any means always effect the cure which may be promptly looked forward to in young children. Call it rheumatism or faulty metabolism, it is strange that this third factor has for so many years passed unnoticed. Chalaza, as is well known, is prone to recur. So marked is this tendency that patients become habituated to operations. If, by treating this rebellious condition by the salicylates a cure can be obtained, even if it be only in a small proportion of cases, a very great gain in the therapy of the eye has been achieved.

Dr. G. H. McAuliffe said that it seems strange to a man whose whole time is given to the treatment of the eye to hear general practitioners say naïvely that "they never touch the eye, except for conjunctivitis or inflammation of the lids." Many of these gentlemen cannot differentiate iritis from conjunctivitis. Dr. Kalish's paper has shown the general practitioner that eye diseases are by no means altogether local; that they are not always cured by local medicaments, and that there are many pararheumatic conditions which succumb to antirheumatic treatment. What their nature may be is a matter of speculation. But it has long been recognized that the salicylate of soda has an admirable stimulant effect on the ocular circulation. He believes that many cases of blepharitis are due to direct infection of the germ of sycosis. The general practitioner should beware of the use of local remedies.

In closing Dr. Kalish said that there had been so general an acceptance of the views expressed in his paper that little remained for him to say, except to emphasize the statement that rheumatism is not always the underlying cause of the maladies mentioned, but only of the neglected and so-called incurable cases. Many causes unquestionably operate to establish the pathological conditions, but when local treatments of all kinds have failed, and the diseased conditions persist, rheumatism is the cause. Defective metabolism exists and when this condition of lack of balance between waste and repair has been remedied, the formation of toxins arrested and their elimination accomplished, recovery is assured.

Treatment of Epididymitis.—Dr. Sherman K. Foote read this paper. He outlined the method of treatment employed in the Roosevelt Hospital Dispensary. Upon the development of pain in the epididymis all injections are stopped, the patient is sent to bed and put upon a fluid diet. Free catharsis is ordered, together with rest in bed, and mild urinary sedatives. Locally, in the most recent series of cases experimented upon, a new drug, which is an ester of salicylic acid, has been used. It is a clear liquid, freely miscible, with animal and vegetable oils. Medicinally, it is characterized by the fact that when painted on the unbroken skin, it is absorbed and circulates in the blood as sodium salicylate. This drug, when applied to the scrotum once a day, produces a local feeling of warmth, no inflammation of any import, but occasionally a fine desquamation. Within a period varying from twelve hours to seven days, the pain is very largely controlled. As soon as this has been accomplished, the swelling of the organ is reduced by the application of mercurial ointment locally and iodide of potassium internally, and by thorough strapping. In applying the straps, care should be taken to first confine the testicle to the lower part of the scrotum by a band of adhesive plaster passed tightly around the scrotum above the testicle. The strips which cover the lower part of the scrotum should begin and end at this circular band as a fixed point, and they should be drawn tightly at intervals of a few days each until the swelling has disappeared.

Dr. W. C. Klotz said he was glad to confirm Dr. Foote's observations. He believed, however, that in order to get the good results quoted by the author, it was essential that the application be made in the very earliest stages of the disease.

Dr. J. H. Waterman said that in the Hospital for the Ruptured and Crippled, where a great many of these cases congregate, it is customary to treat them with equal parts of the tinctures of belladonna and iodine.

BOOKS RECEIVED.

The MEDICAL NEWS *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* MEDICAL NEWS *will shortly appear.*

REPORT OF THE STATE BOARD OF HEALTH OF ILLINOIS. 1903. 8vo, 380 pages. Springfield, Ill.

REPORT OF THE BUREAU OF ANIMAL INDUSTRY. Vol. 19. Government Printing Office, Washington, D. C.

DISORDERS OF METABOLISM. By Dr. C. von Noorden. Part 4. 8vo, 80 pages. E. B. Treat & Co., New York.

PROGRESSIVE MEDICINE. Vol. 4, 1903. 8vo, 444 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.

BLOOD PRESSURE IN SURGERY. By Dr. Geo. W. Crile. 422 pages. Illustrated. J. B. Lippincott Co., Philadelphia and London.

A COMPEND OF PATHOLOGY. By Dr. A. E. Thayer. Second edition. 8vo, 711 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. Edited by Dr. A. H. Buck. Vol. 7. Sactule. Quarto. 951 pages. Illustrated. Wm. Wood & Co., New York

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ORIGINAL ARTICLES.

ABDOMINAL PAIN OF INTESTINAL ORIGIN.*

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THE importance of a correct interpretation of the meaning of abdominal pain, when considered in connection with abnormal intestinal conditions, can hardly be overestimated, as in all serious disorders of this portion of the body, the advent of pain in varying character and degree is often the first warning given that the patient is suffering from a disease, which if not promptly recognized, and the condition immediatly relieved by the performance of a more or less serious surgical operation, may soon terminate his life.

Failure to heed this warning or to reach a correct conclusion as to its cause has been in the past, and too often still is responsible for the untimely ending of many valuable lives; while delay caused by an effort to make an exact differential diagnosis in doubtful cases is still responsible for the high rate of mortality attending surgical operations undertaken for the relief of acute intestinal disorders. As Maurice Richardson, in a recent valuable paper, has forcibly said in regard to this subject:

"Can we by study, observation and reasoning, learn to interpret the cry for help, which through pain, the fatal lèsion utters? Can we understand the cry which says, help the perforated stomach, the gangrenous appendix, the bleeding artery, the ruptured gall-bladder and the obstructed intestines?"

Abdominal pain, as has been stated, is common to all serious disorders of the intestines; its peculiarities in only one or two instances however, being sufficient, when considered alone to at once suggest to the physician's mind the general character of the disease; consequently in arriving at a reasonably correct diagnosis, in the cases we are discussing it is necessary to take into consideration, in addition to the pain, other important factors, such as the previous history of the patient and other accompanying bodily symptoms.

In a general way it may be stated that abdominal pain of a sharp and persistent character indicates involvement of the peritoneum whereas, a dull and aching pain points to involvement of the connective tissue only; while a cardialgia considered in connection with abnormal intestinal conditions, would limit the disease to the duodenum; tenesmus indicates limitation of the disease to the lower third of the intestinal tract; whereas, colicky pains occurring several times a year in the same person, who is not habitually constipated, would, according to Hemmeter, be suggestive of entero-stenosis.

Duodenitis.—A constant abdominal pain, with increased sensitiveness to pressure in the right hypochondriac region, occurring in a patient suffering from an acute gastritic, and in whose stools there is mucus, with or without blood, is indicative of duodenitis.

Enteritis.—Colicky abdominal pains extending in various directions, accompanied by unpleasant sensation of pressure, abdominal distention, diarrhea, loss of appetite and thirst, indicates that the patient is suffering from acute inflammation of the bowels.

Colitis.—While involvement of the colon, makes itself manifest by an increase in the diarrhea, the limitations of the pains and the sensativeness on pressure largely to the large bowel.

Sigmoiditis, Proctitis.—Colicky pains in the left iliac fossa followed by tenesmus and mucous blood-stained stools, are indicative of inflammation of the sigmoid flexure and the rectum.

Enterocolitis in Children.—While intense griping abdominal pains occurring during the summer months in a child under four years of age accompanied by constant vomiting and frequent watery discharges from the bowel, rapid pulse, high bodily temperature, and collapse, is symptomatic of enterocolitis.

Chronic Enteritis.—Recurring abdominal pain following errors in diet, unusual physical exertion, mental excitement, accompanied by abdominal distention, gurgling sounds when pressure is made on the abdomen, and diarrhea with or without tenesmus, is indicative of chronic intestinal inflammation.

Membranous Colitis.—Abdominal pain localized in the transverse or descending colon continuing for several days and occurring in a neurasthenic woman giving a history of constipation followed by the voiding from the bowel of strings of mucus or casts of large gut, is indicative of membranous colitis.

Fecal Distention of Cecum.—Abdominal pain and tenderness of mild character located in the right iliac fossa in an aged person of sedentary habits or in a child, who also complains of digestive disturbances, and who has a doughy sausage-shaped tumor in the cecal region is indicative of fecal distention of the cecum.

Impaction of the Feces.—Abdominal pain, accompanied by mild symptoms of intestinal obstruction and a feeling of weight, and distention in the right iliac region and tenesmus occurring

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in elderly people of sedentary habits, is indicative of fecal impaction; the diagnosis being definitely settled by a local examination.

Lead Poisoning.—Severe abdominal pain, distention and tenderness associated with vomiting, constipation, followed by diarrhea, occurring in one who is also suffering from acute anemia and who has recently been exposed to the fumes of lead is indicative of acute lead poisoning. In the chronic form of the disorder, intestinal colic and a blue line on the gums, occurring in a lead worker, are the most important factors in making a diagnosis.

Primary Tuberculosis of the Intestines.—Colicky abdominal pains occurring in a child having enlarged mesenteric glands, moderate fever, irregular diarrhea and who is losing markedly in weight, are suggestive of primary tuberculous infection of the intestines.

Secondary Tuberculous Infection of the Intestines.—Recurring attacks of severe abdominal pain associated with alternating attacks of constipation and diarrhea, occurring in a patient having tuberculous involvement of the lungs and who also has a thickening of the tissues, or an elongated tumor in the right iliac fossa, are indicative of secondary tuberculous infection of the intestines. In both cases, the diagnosis being settled by the finding of the tubercle bacillus in the fecal discharges.

Tapeworms.—Abdominal pains occurring in an anemic person who is also suffering from nausea and diarrhea, but whose appetite is good, is suggestive of tapeworm; the diagnosis finally depending, however, on finding segments of the worm in the stools.

Intestinal Ulceration.—A continuous abdominal pain, associated with tenderness on pressure, always localized in the same spot, is symptomatic of intestinal ulceration. When the ulcer is located in the first portion of the duodenum, the pain is situated in the right hypochondriac region, radiates down toward the pelvis, and comes on about two hours after eating and usually occurs in an adult male, thirty to sixty years of age, who also passes blood with more or less frequency, or in a woman who has within a week or two suffered from an extensive burn. If a patient suffering from typhoid fever in the third or fourth week of the disease complains of increased abdominal pain in the hypogastric region associated with irritability of the bladder with pain extending to the penis, early perforation of an intestinal ulcer may be looked for, as these symptoms indicate extension of the inflammatory process.

Appendicitis.—A sudden abdominal pain at first referred to the epigastric and umbilical regions and later becoming localized in the right inguinal region, accompanied by abdominal distention, rigidity and tenderness on pressure, is symptomatic of appendicitis, especially so, when occurring in a young adult male, following unusual physical exertion, or in a female at or near the menstrual period, who are also suffering from constipation, gastric disturbance, a moderate amount of fever, irritable bladder and a rapid pulse. It must, however, constantly be borne in mind that as the location of the appendix varies the pain accompanying it does also and may be located in the right lumbar, lower epigastric or umbilical region, in this last case, it may sometimes even be to the left of the median line, instead of in the right iliac fossa. The tenderness on pressure ordinarily remains, however, at this point with a dart of pain to the umbilicus as has recently been pointed out by Alexander Lambert, as the attachment of the appendix to the cecum is fixed. Constantly recurring attacks of appendicular colic are probably due, as has been stated by Talamon, to violent and irregular contractions of longitudinal muscular fibers in the effort to expel mucus.

Obliterative Appendicitis.—A constant abdominal pain over McBurney's point, with tenderness on pressure, is indicative of chronic obliterative inflammation of the appendix.

Chronic Relapsing Appendicitis.—Recurring attacks of pain in the right inguinal region at varying intervals, occurring in an anemic and emaciated individual, who complains also of digestive disorders and constipation, is suggestive of chronic relapsing appendicitis.

Typhoid fever in its earlier stages is often mistaken for appendicitis, but this error may frequently be avoided by remembering that while in appendicitis the fever is usually moderate in degree, and the pulse rate high, the reverse is the case in typhoid fever, where the body temperature is high and the pulse rate low. A blood count will also be of service. Typhoid fever in its beginning having a low leucocytosis, while appendicitis has a high one.

A diagnosis of appendicitis should never be made until a careful examination of the patient's chest has been made, as has been pointed out by Richardson, for the writer has knowledge of a case occurring in the practice of another surgeon, where the patient gave a history of recurring attacks of appendicitis, complained of pain in the right iliac and umbilical regions had gastric distention, fever, rapid respiration, and high pulse rate, but, it being hot weather, the chest was not examined. The condition was diagnosticated as appendicitis and operation was decided upon. The operation proved that the patient had previously had attacks of the disease, but was not at that time suffering from the trouble and further investigation revealed the fact that the patient was really suffering from a right-sided pneumonia. Unfortunately the patient did not survive. It must not be forgotten that in some virulent cases of appendicitis we have a normal bodily temperature with a high pulse and rapid respiration rate.

External Strangulated Hernia.—Severe abdominal pain referred to the umbilical region, associated with a sudden and complete constipation, persistent nausea and faintness and collapse,

is suggestive of external hernia, and search should be at once made in the inguinal canal, umbilical and femoral regions, obturator and ischiatic foramens, perineum, rectum, vagina and the entire abdominal wall for ventral or lumbar hernia, not forgetting to examine the linea alba, for localized tumor or tenderness on pressure. The symptoms of internal strangulated hernia are of course those of distinct intestinal obstruction.

Intestinal Perforation and Obstruction.—Sharp recurring abdominal pain, increasing in severity, at first localized and then becoming general, followed by muscular rigidity and marked localized tenderness, vomiting, rapid pulse and respiration, prostration and collapse, is indicative of intestinal perforation, when associated with a history of any variety of intestinal ulceration, stab and gunshot wounds or severe contusion of the abdomen. Similar symptoms associated with constant and violent peristalsis, absolute constipation, more marked abdominal distention, occurring in a patient giving a previous history of external hernia, operation, peritonitis, tuberculous intestinal disease or tumor, is indicative of acute intestinal obstruction, or the obstruction may be due to an internal hernia, Meckels diverticulum, a long adherent appendix or Fallopian tube, or the paralysis following plugging of mesenteric vessels by a thrombus or embolism. The last condition may be suspected when a patient having a diseased heart or arteries, or pulmonary disease complains at first of severe general abdominal pain and tenderness, which is out of all proportion to the accompanying constitutional symptoms and whose constipation does not yield readily to treatment, or who passes a quantity of blood by the bowel. Unless the condition is recognized and the patient relieved promptly by the excision of the diseased gut, the general symptoms of obstruction and perforation already alluded to, soon follow.

In a case of this kind recently seen and reported by the writer the cause of the trouble proved to be due to the extension of the inflammation from a diseased appendix to the contiguous mesenteric vessels. The patient's symptoms were for the first two days of the illness those of mild recurring appendicitis, and were then followed by severe abdominal pain to the left of the median line, the pulse and temperature remaining practically normal for forty-eight hours longer, when symptoms of intestinal perforation manifested themselves and when the patient's abdomen was opened a few hours later, it was found to contain about a gallon of liquid intestinal contents and blood, a coil of the ileum about twelve inches long in a gangerous condition, black in color with a perforation the size of a five cent piece presented itself. The appendix was found acutely inflamed, especially its tip, which was bright red in color and adherent to the mesentery of the necrosed bowel. The report of the pathologist, Dr. Horst Oertel, was as follows:

"The portion of the small intestines shows deep hemorrhagic infiltration of all structures with edematous swelling, and simple necrosis of all tissues, it evidently progressing from the deeper portions to the mucous membrane. The vessels being very much dilated and thrombosed in one portion the size of a five-cent piece. Necrosis had so far advanced as to produce rupture of the gut. Immediately around the opening there was found necrotic tissue without inflammatory reaction."

In discussing the case just alluded to, and in referring to the character of the abdominal pain found in such cases, Dr. Alexander Lambert said that a patient of his, an intelligent physician, suffering from this condition, told him he felt as if every little capillary throbbed with pain.

It may be well to bear in mind that the patient generally rallies from the shock following perforation, and if the operation is performed within twelve hours the chances of recovery are usually reasonably good. A hypodermic injection of ergot and strychnine, with an intravenous injection of saline solution, may be used to rally the patient before the operation is undertaken with great advantage.

Hemorrhoids, Fissure or Anal Ulcers.—Severe abdominal pain during and after defecation, followed by discharges of a small amount of blood, occurring in a woman, the pain being referred to the vagina and the uterus, is symptomatic of hemorrhoids, fissure or anal ulcer. The diagnosis is completed by local investigation.

Intussusception.—A violent recurring abdominal pain, occurring suddenly in a healthy infant, accompanied by tenderness and passages of blood-stained mucus from the bowel and an elongated cylindrical abdominal tumor is indicative of intussusception.

Chronic Obstruction of the Colon.—Subacute intermittent symptoms of intestinal obstruction accompanied by tenderness on pressure, and the voiding of mucus tinged with blood by the bowel are indicative of chronic obstruction of the colon.

Volvulus of the Sigmoid Flexure.—Subacute symptoms of obstruction occurring in a male over forty years of age giving a history of constipation, the prominent feature of the disease being an extreme and rapid distention of the intestine, is symptomatic of volvulus of the sigmoid flexure.

Malignant Intestinal Disease.—Colicky abdominal pain occurring in a person advanced in life, having a history of obstinate constipation, associated with an increasing cachexia and anemia, accompanied by a hard nodular tumor which is tender on pressure, is indicative of malignant intestinal disease. The higher up in the canal the disease is located the more acute the symptoms, while, when it is located in the rectum, it is indicated by more or less tenesmus

brought on by or occurring during and following evacuations, the pain radiating down toward the loin, genitals and upper part of the thigh, accompanied by alternating evacuations of mucus, pus, blood and fecal matter.

Conclusion.—From what has already been said, it is clear that the chief value of abdominal pain as a diagnostic symptom in abnormal intestinal conditions, is not only to call the attention to the fact that the patient is suffering from an intra-abdominal disorder of greater or less severity, but also in the class of cases requiring surgical intervention for their relief, to indicate to the surgeon the locality of the trouble, hence, it becomes the duty of the physician in all cases in which severe abdominal pain is a prominent factor, to make careful notes of the patient's condition and symptoms when he first sees him, to refrain from the administration of narcotic and cathartic drugs, until a surgeon, when practicable, has also seen the patient, a diagnosis made, and a definite line of treatment decided upon.

It must constantly be kept in mind that a severe, sharp and persistent abdominal pain, almost invariably means peritoneal involvement, provided the chest has been carefully examined and its diseases excluded, and that sudden cessation of such a pain accompanied by a rise of pulse rate and increased frequency of the respiration with or without a lowering of the bodily temperature, usually denotes gangrene of the gut and its perforation. Many lives will be saved, and thousands of others made more comfortable when physicians generally come to recognize that in all cases of persistent abdominal pain of obscure origin, exploratory operations should be performed, for it has been the writer's experience that a cause always does exist when such a pain is present, and that it is usually found with ease when looked for; in other words, when in doubt operate, for, as Osler has wisely said, "The surgeon is often called too late, never too early."

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THE DIETETIC TREATMENT OF ARTERIOSCLEROSIS.*

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The object of this paper is the brief consideration of some of the cardinal points in the dietetic management of arteriosclerosis. The importance of regulating the manner of life and the diet of the patient with this affection is well recognized, but unfortunately not sufficiently emphasized in daily practice. In the iodine compounds and the nitrites we have at hand remedial agents of great value. The judicious use of these drugs is rational and proper, yet the treatment of a case of arteriosclerosis must not rest with drug administration, for, if it does, we are fighting against too great odds. We have failed to consider the strong probability that the constitutional effects of the quantity and quality of the food in which the patient habitually indulges will greatly modify, if they do not absolutely nullify, the physiologic action of our drugs.

Arteriosclerosis is a condition of degeneration of the arterial wall followed by fibrous hyperplasia leading to contraction and rigidity of the vessels and increase of blood pressure. It is not agreed among pathologists whether the media or intima is first affected. Thoma holds that the process starts in the media owing to the lessened resistance of this coat. The vessel in consequence becomes wider and the blood stream is slowed. By a compensatory process connective tissue develops in the subendothelial layers of the intima in the effort to restore the normal relation between the artery and the blood stream. Sansom states that the thickening of the vessel walls may begin in the internal coat, in the external coat, or that the process of fibrosis may even arise externally to the arteries altogether, but by its extension may involve these. Probably some cases of granular kidney have their origin in a proliferating change in the fibrous tissue external to the blood vessels, others in the blood vessels themselves. In lead poisoning, for instance, the initial nephritis is parenchymatous. We have strong evidence that in many cases the sclerotic changes are due to a soluble poison circulating in the blood. Let us consider for a moment the explanation of Sansom. In his first group of cases this poison acts directly upon the internal coat of the vessel; in his second group the channels are the lymphatics which are so abundant around the external coat; in his third group the distribution is through the lymphatics in the various fibrous tissues. Among the toxic causes giving rise to such a poison are syphilis, alcohol, gout, chronic lead poisoning, diabetes, chronic tuberculosis, and interstitial nephritis. There is another theory of the causation of this affection which holds that arteriosclerosis is not primarily a vascular disease but is the result of metabolic depreciation or perversion. The association of tissue degeneration, fibrosis and arteriosclerosis is almost invariable, though the exact nature of the relationship is at present unknown (Adler). It is well to recall that hereditary influences, especially syphilis and the constitutional tendency to gout and tuberculosis, play an important part in the development of arteriosclerosis in an early period of life, especially in the second and third decades. An anatomic peculiarity, congenital narrowing of the aortic system, gives rise to a tendency to the acquirement of many diseases and among these arteriosclerosis is frequently observed. J. Burke mentions that the arterial changes occur in these patients at a very early period as a consequence of the persistent high blood pressure. The clinical signs are pallor, a sense of constriction in the chest, dyspnea, cough

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and expectoration. The left ventricle undergoes hypertrophy with dilatation and consequent insufficiency. The liver is found to be enlarged and there are edema and albuminuria.

A consideration of the question of blood pressure is of extreme importance. W. Broadbent has drawn attention to the fact that in many long-lived families the pulse-tension is low and the longevity is due to the fact that there is less strain upon the heart and blood vessels. High tension is also likely to be hereditary, commonly in association with diseases the result of or accompanying faulty metabolism, examples of which are gout and nephritis. Broadbent is of the opinion that high pressure is best treated by eliminants; and P. W. Williams, in discussing Broadbent's paper, emphasizes the fact that increased tension is probably intended for the purpose of eliminating toxic substances, and that the tension should be, as far as possible, let alone and elimination be aided by eliminative drugs and proper diet. We may complete our summary of the etiology of arteriosclerosis by stating that it may be induced by over exertion, either physical or mental, by overfeeding, and that it is to a certain degree physiologic in old age. We have seen from what is stated above that persistent high blood pressure is a dangerous forerunner of arteriosclerosis: and as a necessary principle to guide us in our treatment we must be familiar with those causes which lead to high blood pressure and endeavor to reduce their effects as far as possible.

The blood vessels are resisting elastic tubes; the resistance is always equal to the pressure within, hence blood pressure and arterial tension are equivalent terms. We speak of increased or diminished pressure or correspondingly of high or low tension. Blood pressure may be increased by quick action or increased force of the heart; by increased volume of blood and by those causes interfering with the normal movement of the circulatory stream, for instance by congenital narrowing of the aorta, by increased resistance from within or without the vascular system. The volume of blood is increased after meals or excessive drinking. As a consequence increased blood pressure and high tension result. This is controlled in health by the action of the vasomotor system, dilating the vessels and also by enlargement of the veins. When the quantity of blood remains normal and the capacity of the vessels is lessened from any cause as, for instance, cutting off a vascular area by ligation or obstruction, by narrowinig the caliber of the wall, as in arterial spasm, endarteritis, by disease of the kidney, contracting the lesser channels in the aortic circuit, or disease of the aorta causing obstruction to the outflow of blood—in all these conditions there results increased pressure or high tension (Musser). Nature makes the effort to reduce this tension by the action of the normal regulating vasomotor apparatus.

In our consideration of the etiology of arteriosclerosis we have dwelt at some length on the fact that continued high blood pressure, from whatever cause, whether due to the action of a poison circulating in the blood stream, or due to increased capillary pressure, if not corrected is bound to result in sclerotic arterial changes.

When we consider that the circulatory system in any, or all, of its parts may undergo sclerotic changes we are not surprised at the great number of clinical manifestations of this condition that may arise. Symptoms may develop in any organ or part as a result of the faulty circulation. As is to be expected those organs or parts which have most work to do and which in consequence demand the most blood are most frequently the seat of morbid changes. We would mention these in the following order: (1) The heart, (2) the nervous system, (3) the kidney, (4) the gastro-intestinal tract. We must recognize, however, that there are no hard and fast lines of involvement, that every case is a law unto itself; there may be localizing symptoms or simply a general breakdown.

For the sake of bringing out clearly the forces which are usually at work in these cases and for the further purpose of indicating our line of treatment, I shall mention a few of the typical classes of patients who present themselves for treatment. The proviso is made, however, that this classification is adopted merely for the purpose of convenience and that a particular case may belong to two or more of these groups, or not fit into any of them.

First, those cases occurring in young men who have been used to hard, manual labor and physical overstrain. These patients frequently complain of vague dyspeptic symptoms or, perhaps, cardiac discomfort. Very frequently they live irregularly and use alcohol to excess. Their muscular labor makes constant demands for increased blood supply and cardiac hypertrophy results. Sudden overexertions make frequent unusual demands for blood and the vasomotor system is finally unequal to adjust the blood pressure to normal; it remains constantly high. Valvular lesions, as well as dilatation of the heart, are frequently encountered.

Second, may be mentioned patients of plethoric habit—the obese, well-fed men of business or professional life. This class works with its head rather than its hands. As a rule these patients eat too much and exercise too little. There is complaint of gastric disturbance, often chronic constipation and, very usually, mental torpitude. The patient tells us that he finds himself unequal to his work, that he is forgetful, irritable, and less sure in his judgment than he has been.

Our third class is comprised of the ill-nourished, highly nervous individuals past the fourth decade in years. These patients have plainly visible and tortuous arteries. They are neurasthenic, introspective and hypochondriacal.

The fourth class might be included as a later stage of the second. Men of affairs not of nervous habit, suddenly seem completely changed in disposition. They often complain of insomnia,

palpitation, mental lapses, inability to center attention, and at times spells of syncope.

It is not within the scope of this paper to discuss the diagnosis of arteriosclerosis, yet it is but truth to mention the fact that it is not uncommon to see these cases wrongly diagnosed and, in consequence, wrongly treated. It stands to reason that the indication is to lower the blood pressure and spare the heart, yet stimulation and even the use of digitalis may be laid at the door of many a worthy practitioner in the very cases when the main indications are diametrically opposite.

In the management of arteriosclerosis we must consider the long course of the affection and the fact that the damage which has been done cannot be repaired. The physician's aim must be to arrest the process and thereby make it less likely that serious complications follow. The patient with arteriosclerosis, whatever his years, is to be regarded as an old man whose work in life must be of the lightest character and whose road must be made as smooth as possible. The laborer with this condition must find lighter work and, indeed, muscular work, in general, should be kept at the point of merely maintaining the cardiac hypertrophy and muscular nutrition. I am well aware that these indications are difficult of attainment, but nevertheless they are clearly outlined, and when once recognized very often much may be done. It may not be impossible for many sufferers to change their vocations to those whose duties are less arduous. When once our diagnosis is fully confirmed our advice should be emphatic. The picture of the final complications of arteriosclerosis—apoplexy, aneurism, angina pectoris, uremia—is rather less pleasant to contemplate than even the most radical change in a man's vocation and manner of life. What we have said refers especially to the class which do manual work; to those whose mental burdens are great, as in the responsibilities of a great business, we must be equally insistent. Frequent vacations in which the patient gets back to nature as closely as possible are not always unattainable, and it is often feasible to lighten the burden of one's mental responsibilities when the need is imminent.

The question of diet in general is one of far greater importance than I can hope to set forth to-night, but there is no condition in which it might be made the text of an excellent sermon with greater profit than in the discussion of arteriosclerosis. There is the same danger of overfeeding an adult that there is in underfeeding an infant. Unlike other animals, man has an extremely varied dietary. His gastro-intestinal tract is called upon to perform heroic work in the digestion of improper food as well as too much food. Most of the carnivora feed but once in twenty-four hours; in man, the stomach at best gets but a short rest. We have departed so much from primitive life in the development of our civilization and especially in the curtailment of exercise that elimination is accomplished with greater or less difficulty.

It is necessarily impossible in view of the manifold conditions by which we are confronted, to lay down hard and fast rules for the dietetic treatment of arteriosclerosis. The general indications, however, are clear enough and these must be so altered as to meet the needs of any given case.

Chemical action is the basis of all vital activity. In the performance of bodily functions energy is yielded in the form of work and heat. To supply this energy new material must constantly be furnished and transformed into assimilable material which is utilized by the economy. Certain waste products which remain are to be carried off. The new material is brought to the body in the form of food which must fulfil the conditions of being received into the body, transformed, stored up as potential energy, and capable of yielding on demand muscular work and heat (kinetic energy). Foodstuffs are made up of alimentary principles or nutrients and certain waste products. However great the varieties of foods, all contain but few proximate principles. A convenient classification divides these principles into organic and inorganic. Of the organic principles, some are nitrogenous, *i.e.*, the proteids and albuminoids. While others are as non-nitrogenous, *i.e.*, the carbohydrates and fats. The inorganic alimentary principles are water and mineral matters.

The important elements in foodstuffs are nitrogen and carbon. The essential waste products are urea and carbon dioxide. The materials which we eat and drink differ widely in composition from the tissues which they are intended to form or repair. This material is generally in an insoluble form and it is by the processes of digestion that food is so changed that it may be absorbed by the blood and taken up by the tissues of the body.

Water and the inorganic salts are not regarded as foods in the usual acceptation of the term. Since these substances are constantly, however, being lost in the excreta it is necessary that a fresh supply should be furnished to the body. Unlike the other foods water and the inorganic salts are capable of passing through an animal membrane by direct diffusion. They need no digestive action. A glance at the various chemical analyses of food will show that water in large quantities is contained in all and that salts are also present.

The proteids furnish the material from which the repair of old protcid tissue, as well as the development of new proteid tissue, is derived. It is known that the most important constitutent of living matter is the proteid part of its molecule, and for this reason proteid foods are an absolute necessity. Proteids contain nitrogen, while carbohydrates and fats do not contain this element. Therefore, proteid material alone must be supplied in order that new protoplasm be formed. In order to maintain the proper equilibrium of the body a mixture of the alimentary principles should be used; but without proteid

material, the inorganic salts and water, starvation would result.

The albuminoids resemble the proteids closely in their composition: gelatin is an example. They contain nitrogen and are of complex structure, but they cannot take the place of proteids in building up protoplasm. They act, rather, in the manner of the non-nitrogenous foods.

The carbohydrates contain no nitrogen. In this group we include the starches, sugars, etc. In their destruction in the body a certain amount of energy is liberated. The energy of muscular work and of the heat of the body comes largely from the destruction or oxidation of carbohydrates.

Fats, including the animal and vegetable oils, contain no nitrogen and their use in the body is practically the same as that of the carbohydrates. As sources of energy weight for weight fats are more valuable than the carbohydrates, but they are digested with greater difficulty.

Meats have a relatively large amount of proteid, or of proteid and fat, and a small percentage of carbohydrates. The vegetable foods are distinguished, as a rule, by the large percentage of carbohydrates and, with exceptions, by small amounts of proteids.

It is of great importance to know the nutritive value of the articles which make up our ordinary diet, but it is equally important to remember that these articles are not digested at the same rate or with equal completeness. It has been demonstrated that the proteids of animal foods are more completely digested than those of vegetables and for that reason the chemical analyses express more directly their food value. The relative value of various foodstuffs may be considered from the four points of view suggested by Hutchison: (1) Chemical. What percentage of each nutritive constituent does the food contain? (2) Physical. How much potential energy is it capable of yielding? (3) Physiological. How does it behave in the stomach and intestine? Is it easily digested, and to what extent is it absorbed? (4) Economic. Are the nutritive constituents which the food contains obtained at a reasonable cost?

1. Chemical analysis gives us the percentages of proteid material, carbohydrates, fats, etc., in a given part of the food considered and enables us to estimate the value of the food as a tissue former and work and heat producer. Satisfactory tables are to be found in all works on physiology and dietetics, and they should be consulted in framing a suitable dietary.

2. The changes which food undergoes in the body are essentially changes of oxidation and the amount of heat which a food is capable of yielding on complete combustion is taken as a measure of its value as a source of energy. The calorie is the standard of heat production and it is that amount required to raise the temperature of one gram of water one degree C. The kilo-calorie or the amount of heat required to raise one kilo of water one degree C. is usually employed for convenience in the measurement of the heat values of food. It is written Calorie with a capital letter in distinction to the ordinary calorie which is written with a small letter. The heat value of one gram of the three chief nutritive constituents when taken into the body tissues is as follows: Proteids, 4.1 Calories; carbohydrates, 4.1 Calories; fat, 9.3 Calories.

The method of applying the Calorie standard to a food is very simple. One has merely to multiply the percentage of proteid or carbohydrate which it contains by 4.1 and the percentage of fat by 9.2 to get the total Calories yielded by 100 parts of the food in question. Suppose, for example, that a specimen of milk contains in every 100 grams 2 per cent. of proteid, 4 per cent. of fat, and 6 per cent. of carbohydrate, then the Calories yielded by that quantity of milk would be as follows: Proteid, $2\times4.1=8.2$; fat, $4\times9.3=37.2$; carbohydrate, $6\times4.1=24.6$. Total Calorie value of 100 grams of milk 70.0 (Hutchison).

A man at full work must receive as a daily income about five per cent. of his body-weight (Waller).

Solid food	1 per cent.
Ogygen	1 per cent.
Water	3 per cent.

For example, a man who weighs 70 kilograms (about 160 pounds) must receive

Solid food	= 500 grams
Oxygen	= 700 grams
Water	=2,100 grams
Total	=3,500 grams

The 700 grams of solid food should contain about

140 grms. proteid
105 grms. fat
420 grms. carbohydrate
35 grms. salt.

For each kg. of body-weight the diet should contain two grams proteid, 1.5 fat, 6 grams carbohydrate, 0.5 grams of salt. A total of ten grams, or 1 per cent. of solid food. This amount of solid food should yield between 3,000 and 3,500 Calories. If we apply the simple rule given above in the estimation of the Caloric value of 100 grams of milk, we have

Proteid	140 grams$\times$4.1=	574
Fat	105 grams$\times$9.3=	976.5
Carbohydrates	420 grams$\times$4.1=	1,722
Total in Calories...		3,272.5

The amount of proteid in this diet is perhaps unnecessarily high. One hundred or one hundred and twenty grams would probably be sufficient. This abundant amount will be influenced by the age of the patient, his general health and the work in which he engages. A man at rest should receive one-half, or three-fifths of this amount. These points have been mentioned somewhat in detail for the purpose of enabling us to make a practical application of these facts.

It will be seen from the above that a man

weighing 160 pounds requires 1.6 pounds of solid food per day. If the patient is obese and is accustomed to overfeeding he takes much more food than even this most liberal standard allows. In all probability he exercises but little, has fatty, flabby abdominal walls and complains of digestive disturbances and chronic constipation. When we remember that the splanchnic nerves regulate blood pressure and that stimulation of these nerves increases blood pressure especially within the abdominal cavity, one of the contributing causes of arteriosclerosis in cases of this type becomes clear. Another factor also to be considered is that the constipation usually present leads to auto-intoxication which furnishes an additional means of increasing arterial tension by means of soluble toxins. It is evident that the amount of food must be reduced in these patients and that they should be forced to take moderate exercise and be relieved, as far as possible, of mental responsibility. There is danger in any reduction system, however, on account of the age of the patient and the tendency to fatty degeneration of the heart. Our object must be to produce a very gradual loss of weight and an increased muscular tone.

Other patients with arteriosclerosis may not be heavy feeders but the quality of the food they take will in all likelihood be found too rich in nitrogenous elements, and extractive matters. These are known to be eliminated with difficulty and to increase the blood pressure. In all cases of arteriosclerosis the proteids must be taken in moderation and meats, therefore, should be cut down but not totally excluded.

Foods rich in lime salts are contraindicated theoretically but it is doubtful whether the amount of calcium ingested can increase the amount assimilated for most of it is found to pass through the intestinal tract and may be recovered in the feces. Rumpf, of Hamburg, recommends, however, a diet poor in calcium salts; such as bread, fish, meat, apples and potatoes. He does not allow milk, eggs, cheese, rice, or spinach. Others permit milk and eggs and advise a restricted dietary composed largely of vegetables, cereals, milk and fruits.

In cases of arteriosclerosis it is always imperative to reduce the quantity of fluids taken whether alcoholic or non-alcoholic. The sudden entrance of a large quantity of fluid into the stomach produces an overdistention of the blood vessels, increases the work of the heart on account of the increased quantity of the blood; the blood tension is further also raised by the irritation of the splanchnic nerves. Tea, coffee and cocoa should be prohibited or taken in small quantities. These contain alkaloids which practically have an identical action on the nervous system; this action is one of stimulation resulting in a temporary increase of blood pressure. In addition they form uric acid, retard digestion, somewhat, and increase the work of the stomach. Milk when taken as a food should be drunk slowly and in small quantities, preferably at the time other food is taken. It is well to remember that while milk is a liquid food in the ordinary sense of the term, it is practically a solid food as soon as it reaches the stomach on account of the coagulation of the casein. The curd of the casein is much more readily broken up when the milk is taken with other food. Alcohol is to be prohibited absolutely, unless it is indicated on account of the failing heart. Alcohol is one of the soluble poisons which is recognized as a potent influence in causing arteriosclerosis. Now, there are cases in which the absolute prohibition of alcohol may be of no avail. The alcohol habit may have extended over many years and is not to broken; in such cases the patient should be urged to take small quantities of whisky or brandy or a good dry wine with his meals and to stop the use of malt liquors entirely. The excessive use of tobacco is supposed by some to predispose, if it does not actually cause, sclerosis of the coronary arteries. This statement, however, rests upon doubtful grounds. It is wise in these cases to urge the moderate use of tobacco, recalling its tendency to produce irritable heart and digestive disturbances.

The association of arteriosclerosis with interstitial nephritis and gout, either as a cause or a consequence, has been mentioned and it is interesting to note that the most approved methods of treating these two conditions depend in large part upon the hope of eliminating the dietetic causes of high arterial pressure. Von Noorden especially questions the utility of a milk diet in interstitial nephritis and advises the curtailment of liquids and the taking of small meals. The amount of proteid food must not be too greatly reduced on account of the necessity of maintaining a due degree of cardiac hypertrophy. In the last few years the idea that white meats, such as chicken, fish and veal, are preferable to the dark meats on account of their containing less nitrogenous extractive matter has been denied, and it has been found that the varieties of meat have no constant influence upon the composition of the urine or the amount of albumin which it contains. Indeed the amount of albumin is an index of the severity of the affection in the acute forms of nephritis alone. We know, however, that white meats contain less proteid than the dark and in our effort to reduce the nitrogenous food advantage may be taken of this fact.

In the treatment of gout we must control the amounts of food which yield uric acid, and it is known that foods rich in nuclein perform this part. We must avoid, then, liver, kidney, sweetbreads, and restrict the use of the ordinary meats. Tea, coffee, cocoa and meat extracts are also direct sources of uric acid. Hutchison, discussing the diet in gout, says: "On the whole, the belief seems to be gaining ground that the quantity must be attended to quite as much as quality, and that the best diet for the gouty is a spare one, containing only a moderate amount of carbohydrate and fat, and in which not too much

of the proteid is derived from animal sources. In the light of the above facts, it might be well to add that, so far as is compatible with healthy nutrition, the animal ingredients should consist mainly of milk and eggs." The free use of water is ordinarly recommended for gouty people as an admirable aid in the elimination of nitrogenous waste. Yet, unless the water happens to possess aperient or highly alkaline qualities, it is doubtful whether drinking largely does more than to dilute the urine without increasing the total output of urinary solids.

As an epitome of the necessary dietic restrictions for patients suffering from arteriosclerosis the following may be said: (1) The quantity of food should be greatly reduced, not more than one-half or two-thirds the general average for body-weight being required. This amount in detail should be estimated according to the general rules laid down. (2) The quality of the food is important. Proteid foods are to be reduced, but not excluded. Meat should not be taken more than once daily and then in small quantity. It should be our effort to see that the patient obtains well cooked food especially avoiding large amounts of fat or other substances difficult of digestion. Alcohol, tea, coffee, and cocoa, as well as tobacco, are to be forbidden or used with extreme moderation. Excessive water drinking, or drinking large quantities of any fluid must be curtailed. (3) The regulation of meals is important. Breakfast should consist of fruit, a cereal with cream and perhaps an egg, poached or soft-boiled. There should be an interval of five or six hours between breakfast and dinner, and the heaviest meal should be taken in the middle of the day. It is not advisable to place too many restrictions upon what the patient shall have for his dinner. It may consist of soup, fish, meat, and vegetables, but overfeeding is to be strenuously avoided. Between dinner and supper five or six hours should also elapse, and this meal must be light and consist, as breakfast, mainly of fruit and cereals.

In general, a comparatively dry diet is indicated and the patient should eat nothing between meals. Elimination must be kept at its maximum of efficiency and our hygienic regulations laid down in great detail and strictly enforced.

ENLARGEMENT OF THE PHALANGES IN RICKETS: A REPORT OF TWO CASES.*

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THE osseous changes and deformities associated with rickets, more especially those of the head, chest, wrist and ankle, are so generally known and so frequently observed as to render any extended mention unnecessary. A reference to many of the standard English, German and French text-books on pediatrics will show an adequate description of these pathological conditions.

It is quite different, however, with the description or even mention of the changes and deformities in the bones of the hands and feet. To judge from the accounts of rickets in these works, it would seem that physicians controlling a large material among the poorest elements of the population, seldom observe these deformities or, if so, fail to mention them in their discourses on the subject. Thus Henoch,[1] Jules Comby,[3] Baginsky,[4] Ashby and Wright,[5] Seitz,[6] Cheadle,[7] Rehn,[8] Senator[9] and others do not refer to them. Jacobi[2] makes the general statement that "the extremities suffer in different ways in all their parts—the epiphyses and diaphyses, the periosteum, and the epiphyseal cartilages." Monti[10] states that "only in severe cases do changes occur in the phalanges of the fingers and toes, and again[12] that "in marked instances of rachitis the phalanges show similar changes to those of the forearm." O. Vierordt[11] says "that apart from an abnormal mobility of the joints of the hand there are no characteristic changes in these parts." Fischl[16] is credited with the statement that "a constant change which I consider typical is rachitis of the phalanges of the fingers; which, in marked cases, appear olive-shaped." Holt[13] writes that "enlargement of the ends of the metacarpal bones or the phalanges I have seen in but two or three extreme instances." Koplik[14] states very explicitly that "the phalanges are sometimes the seat of the rachitic processes. In one severe case I found all the phalanges thickened in the diaphyses. This case bore a very close resemblance to dactylitis syphilitica, especially as there was pain on pressure." An excellent illustration accompanies this statement.

Such being the facts, I desire to record the history of two cases observed in my dispensary practice and to present photographs demonstrating the condition in question.

Case I.—David K., aged three years, born in Roumania. Father and mother alive and healthy; no history of abortions. Child was brought to the dispensary because of "general weakness" and inability to walk. Mother stated that delivery occurred at full term and was perfectly normal; the child was breast-fed until the end of the first year, the first tooth, an upper central incisor appearing at four months. At the ninth month the mother noticed an enlargement of the ankles and abdomen, and difficulty in breathing; at one year this enlargement had increased. Being extremely poor, no doctor was consulted; in fact, the visit to the dispensary was said to be the first to any physician. After the first year the diet was a mixed one; the deformities, however, increased until at the time of his visit examination showed the following: Head large and square, fontanelles and sutures closed. (Mother said that at two years the anterior fontanelle was as large as that of a "baby"). All teeth present. Chest narrow, rosary felt both anteri-

*Read at a meeting of the Eastern Medical Society, May 8, 1903.

orly and posteriorly; marked lateral thoracic depression, kypho-scoliosis to the left. Excessive enlargement of the wrist epiphyses, curvature of the forearms. Skin pale and soft, tongue not enlarged, abdomen protuberant and tympanitic. Liver palpable, spleen enlarged. Thickened ankles, moderate degree of bow-legs. Heart normal; lungs, few coarse râles; temperature 99.2° F. per rectum. Blood shows a moderate degree of leucocytosis and chloranemia. No enlargement of the metacarpal or metatarsal bones. Both hands presented the following picture (Fig. 1. Right hand): The first, second and third phalanges of all the fingers of both hands, and both phalanges of the thumbs were thickened. There was no pain or tenderness on pressure, no edema of the skin or enlargement of the joints. The phalanges of all the toes showed a palpable thickening, though to a far less degree than those of the fingers. This thickening affected the shaft and more particularly the middle, rather than the epiphyseal ends. In

Fig. 1.

Case I.—Rickets. Diaphyseal thickening of the phalanges. Enlargement of the wrist epiphysis.

other words the enlargement was distinctly in the diaphysis. The enlargement of the three middle fingers was more marked than that of the thumb or little finger.

After observing this patient the mother was questioned in regard to other children with the result that on the following day the second child was seen.

Case II.—Rosy K. (Fig. 2), aged four years, sister of previous patient. Breast-fed for one year; first tooth at six months. When the child was two years old mother noticed a marked deformity at the ankle and took her to a physician who said that she had the "Englische Krankheit," and advised the necessary hygienic, dietetic and medicinal regime. This child did not begin to walk until she was three years old. Examination showed a large head with closed sutures and fontanelles, narrow chest, rosary, lateral thoracic groove, kypho-scoliosis more marked than in her brother, thickened clavicles, spleen and liver palpable, pot-belly, heart and lungs normal. Distinct epiphyseal enlargement at the wrist and ankle; curvature of the leg and arms more marked than in her brother. The thickening of the phalanges of the fingers and toes (Fig. 2 and 3) was less marked than in previous case though still distinct. Here the enlargement was most evident in the first and second phalanges of the middle and ring fingers of the right hand and the index and middle fingers of the left. In this, as in the former patient, the phalangeal thickening of the toes was more evident to the touch than to the sight.

Fig. 2.

Case II.—Rickets. Showing characteristic deformities and curvatures of forearms and legs.

The enlargement of the phalanges in these two cases is due in all probability to a superiosteal cell proliferation with imperfect and delayed ossification. Unfortunately I was unable to procure skiagraphs of these deformities.

There can hardly be any question as to the rachitic nature of these enlargements, first because of the simultaneous existence of other symptoms and lesions of rickets, and secondly because of the absence of any syphilitic or tubercular history or stigmata. Against syphilitic dactylitis speak the

absence of history, the symmetrical involvement of all the larger joints as well as the fingers and toes, the lack of destructive inflammation after so long a time without treatment, the presence of cardinal signs and symptoms of rachitis and the absence of all syphilitic stigmata-eruption, scars, snuffles, keratitis. Syphilis, as a rule, involves one

Fig. 3.

Case II.—Rickets. Showing right hand with enlargement mainly in the first and second phalanges of the middle and ring fingers.

or several fingers and is usually not symmetrical; Taylor[15] remarks, however, "In one instance I have seen every phalanx of each hand swollen."

I am indebted to Dr. Martin W. Ware for the privilege of seeing a dactylitis syphilitica involving all the fingers of both hands.

Syphilitic bone lesions in many children appear as a rule very early in life and generally attack the junction of the epiphysis and diaphysis. When the periosteum becomes involved it presents irregular elevations or a boggy infiltration, rather than a uniform thickening as in these cases.

Fig. 4.

Case II.—Right and left hand. Left hand shows phalangeal enlargement mainly in the first and second phalanges of the index and middle fingers.

Against tuberculous dactylitis we have the absence of tuberculous history, the negative condition of the lungs, the lack of pain, tenderness, necrosis, suppuration or limitation of motion, and the existence of a symmetrical involvement.

Only one other condition might be mentioned in differentiation—clubbed extremities. In this condition the fingers and toes alone are involved, the head, chest and epiphyseal bone changes being absent; the terminal phalanges are most frequently affected and there are evidences of pronounced or prolonged pulmonic or cardiac disease.

It is true that in the two cases reported the rachitic manifestations were very marked. However, since my attention has been directed to the phalanges, I have observed several cases of rickets of not unusual severity in which some phalangeal thickening existed. *It is my opinion that this condition is very frequently overlooked owing to lack of attention to the hands and feet.*

I might say that both patients were given antispecific and thyroid medication for a long time without any visible effect upon either the general manifestations or the phalangeal thickenings. These cases are interesting, not only on account of the unusual situation and extent of the deformities and of the importance of a proper diagnosis, but also because they show that rickets occurs in breast-fed babies when mother's milk lacks the proper quality and quantity of ingredients necessary for the growth and development of the child. This is a fact too often overlooked and occurs in my experience more frequently than is generally supposed.

I would venture to suggest that these deformities be designated as rachitic dactylitis, partly for the want of a better term to express the condition, and partly because even at this late day authorities disagree as to whether the "nervous (Tedeschi), alimentary (Trousseau, Guerin, Glisson), modified alimentary (Jacobi, Baginsky, Comby), season (Kassowitz, Schmidt, Alexander), infectious (Chaumier), or thymus gland theory (Friedelben, Mendel)" explains the symptoms and lesions of the disease. Since most are agreed that the bone changes are accompanied by hyperemia, dactylitis may not be so exaggerated a term.

Shortly after reading the foregoing before the Eastern Medical Society, I was very much pleased and interested to note a similar contribution by Dr. Rudolph Neurath in the *Wiener klinische Wochenschrift,* of June 4, 1903. This author states that his experience in a large series of rachitic patients has shown that a positive diagnosis of this affection can be made *par distance* from a peculiar deformity of the phalanges of the fingers which gives the bones a spindle shape. He very properly remarks that the middle part of the bone is thickened and that the region of the articulation is normal and appears as if sunken between the enlarged phalanges.

Radiography has demonstrated that the enlargement is periosteal. This phalangeal hypertrophy was observed by him only in severe cases presenting enlarged epiphyses and rosary. Only in rare instances did he observe any enlargement of the toes; when present it was very slight. He comments upon the lack of medical literature in reference to this part of the subject and quotes no less an authority than Kassowitz, as saying

that "alterations of the metacarpal bones and phalanges are rare and absent as a rule even in severe cases."

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TREATMENT OF PNEUMONIA.

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The recognition of the fact that pneumonia is not a local disease of the lungs but an acute infectious fever with its most pronounced anatomical lesions in the lung, gives a basis for the rational treatment of the disease.

In all infectious diseases we recognize a local lesion—usually situated at the point of entrance of the infecting organism—and a toxemia of more or less pronounced intensity varying greatly in different cases.

The toxic condition of the blood impairs the nutrition and interferes with the normal functioning power of the several tissues of the body. Next to the lung, the organs most seriously attacked in pneumonia are the heart and the kidneys. In all cases of pneumonia the pleura is involved in some degree, sometimes bearing the brunt of the attack, even developing a purulent exudate. The lesion in the lung is primarily a congestion rapidly passing to the stage of fibrinous exudate into the air space and round cell infiltration in to the pulmonary tissue, ending in resolution or desintegration.

A brief review of the clinical course of a favorable case shows us the initial chill; the high temperature; the increased frequency, full volume, high tension and normal rythm of the pulse; the coated tongue; the anorexia; the sluggish liver and inactive bowel; a kidney not functioning properly; the diminished excretion of chlorides; the presence of albumin, and usually casts in the urine; the more or less pronounced nervous symptoms; the cough, the rusty sputum, the dry, hot skin; the flushed face of slightly dusky hue, and the leucocytosis. For a week or ten days these symptoms persist, the most important change occurring in the increasing frequency of respiration and loss of the tension and sometimes change in rhythm of the pulse.

At the end of this period there occurs a profuse sweat, the temperature falls, the respiration becomes less frequent, the pulse improves in rhythm, the patient falls into a quiet sleep and awakens refreshed and well. Sometimes a watery diarrhea accompanies or takes the place of the sweat. If the case does not go on to recovery or dies before the time of the crisis, death occurs either from the intensity of the toxemia or from interference with oxygenation from involvement of too great extent of lung or from some complication.

The chief cause of death in pneumonia, exclusive of complications, is failure of the circulation through degeneration of the myocardium. Several factors enter into the causation of this myocardial degeneration, namely, the toxemia of the infection acting directly upon the muscle fibers; the same cause active in the general system and producing an increase in the arterial tension throughout the body, thus making harder work for the myocardium of the left heart already suffering from toxemia; the morbid changes in the lung causing obstruction to onflow of the blood from the right heart, thus throwing harder work upon the right myocardium also suffering from the toxemia. The amount of pulmonary involvement would be, of course, a decided factor from this point of view, as well as from that of interference with oxidation, too great an interference with this function producing death.

Sometimes death occurs from the effect of the toxemia upon the brain; wild maniacal delirium wearing the patient out or a low, muttering delirium ending in coma and death. Sometimes the kidney bears the brunt of the attack and uremia is added to the toxemia of the infecting organism.

Occasionally the gastro-intestinal tract is most seriously involved, and there occurs a violent diarrhea or a marked fibrinous inflammation of the lining mucous membrane.

The most common and serious complications of pneumonia from which death may occur are meningitis, pericarditis, endocarditis, nephritis and empyema. These, however, will not be considered in this discussion, which is limited to the treatment of pneumonia.

To plan a rational mode of treatment in an acute infectious disease it is important to note the mode of recovery and the usual modes of death, and to establish such procedures as will tend to promote the former and prevent the latter.

Such a plan, in the treatment of pneumonia, may be divided into the following general heads: (1) To relieve toxemia; (2) to prevent failure of heart; (3) to meet complications as they arise.

For the relief of toxemia, there are three natural avenues of excretion by which poisons may be carried off; these are the kidneys, the bowel and the skin.

In all cases of pneumonia we have inflammatory involvement of kidney to a greater or less extent. The attempt to stimulate to excessive functional activity an organ in a state of acute

inflammation is worse than useless, so the use of stimulating diuretics is positively contra-indicated.

The bowel and the skin remain and nature has shown by the profuse sweat at crisis and the occasional critical diarrhea that these are the avenues that are preferred.

So our first indication in treatment, the relief of toxemia, may be met by induced sweats and mild catharsis. The mild catharsis is best produced by the administration of calomel at the onset of the disease to be followed by the use of a saturated solution of Epsom salts in moderate dose daily. The calomel dose may be repeated occasionally as the indications arise. The sweating is best and most easily induced—not by the administration of drugs—but by the hot mustard footbath scientifically given in bed with no disturbance of the patient. As much depends upon the proper method of giving this bath and as I have seen failures through lack of this knowledge, I shall describe the procedure in detail.

The patient, in a nude condition, lies between blankets with his knees flexed, his feet in the tub which has been introduced under the upper blanket, the long axis in the line of the patient's body and legs; another blanket passes from under the tub up over the end and over the knees of the patient; two to five blankets or a fewer number of blankets and a rubber sheet are then placed over the patient extending from the neck of the patient over the foot of the bed and tucked in around the foot-tub and side of the patient. The tub at first is filled half full of hot water in which a heaping tablespoonful of mustard has been dissolved—from time to time during the bath more hot water is added, care being taken that the water is poured against the side of the tub and stirred in by the hand of the nurse, in order to avoid burning the patient's feet. The bath is kept up from thirty to forty-five minutes according to the amount of sweating produced. During the administration of the bath cloths wrung out of ice water are kept constantly on the head of the patient. This sweating in connection with the stimulation to be referred to later, is, in the opinion of the writer, the most important of the general therapeutic measures.

Another measure of value in preventing further bacterial invasion is the frequent and thorough cleansing of the mouth with a mildly antiseptic solution. I think this a measure of considerable importance, as we know the pneumococcus is present in the mouth in considerable numbers.

While attempting to get rid of toxins by these means, it is important to put and keep the patient in the best possible condition to resist and overcome the toxemia that is present. For this purpose care should be exercised in the selection of a proper diet. This should be fluid and so far as possible should be sterile, so that no new poisons may be introduced. A large amount of pure water should be administered so that there may be plenty of fluid to flush the excretory organs. It is best administered in small amounts at short intervals.

Moreover the patient should be placed in the best ventilated room possible to secure and one to which there is free access of direct sunlight. The free catharsis and profuse sweating, besides aiding in elimination of toxins, tend to dilate the capillaries, thus relieving the arterial tension and getting rid of the capillary resistance to the onflow of the blood, making the work of the heart easier. One of the serious dangers we have seen is over distention of right heart. This can often be prevented by careful study of the lung condition as well as the state of the heart itself and the prompt institution of the procedure indicated. A careful physical examination of the chest should be made by the physician at every visit. In this way he can tell when congestion is beginning in any part; and vigorous local treatment will in many cases prevent the further progress of the morbid process. As soon as a portion of the lung is shown by physical examination to be in a state of beginning congestion, the prompt and thorough application of leeches, wet cups or dry cups over the part, will often stay the process there; or if it does not stop it entirely, will delay its progress twenty-four or forty-eight hours and give an opportunity for the clearing up of any previously involved portion of lung. My preference is for leeching or wet cupping. If dry cupping is resorted to, it should be very thorough, the skin and subcutaneous tissue rising up in the cup to as great a height as possible and turning blue or purple while there. The cups should be left on for a half hour and the process repeated every four to six hours. I have seen, post mortem, the direct anatomical evidence of the local value of this procedure, when thoroughly done. During the intervals between the applications of the cups the chest should be covered with a light woolen jacket. The poultice jacket should be relegated to the dark ages.

With ice applications I have not produced the relief of congestion desired. If, in spite of these local measures to relieve congestion, the process still persists and we begin to have evidence of overdistention or right heart, such as increasing cyanosis, the pulse losing its tension and becoming small and sometimes irregular, the liver enlarged, the veins pulsating and the area of cardiac dulness increasing chiefly to the right, whether a murmur of tricuspid insufficiency is present or not, prompt relief can usually be obtained by the withdrawal of 8, 10 or 12 ounces of blood from the median vein of the forearm. This procedure may be repeated several times if need be in the course of the disease. The procedure is of value both for its local effect in relieving the right heart distention and also for its general effect in withdrawing a decided amount of toxic material. At this time a little digitalis, given with due regard to its physiological effect, may be of decided value.

After the withdrawal of blood, and in cases in which heart failure is imminent without evidence of right distention, the subcutaneous injection of

normal salt solution has on several occasions proven of inestimable value. The use of the salt solution by rectum has also been of value, but of course does not give the prompt result that the hypodermic administration does. Whether the value of the procedure is dependent upon the restoration of bulk to the blood after the relief to the right heart has been obtained or whether the salt itself is of value, is worthy of investigation, the fact being established that in several cases that have come under my observation—in one of them three times—the administration of the salt solution certainly had a marvelous effect in averting an evidently impending death.

If more than one lobe is involved the regular administration of pure oxygen gas at stated times, shortening the interval and prolonging the duration of the administration if cyanosis persists or increases, or if the frequency of breathing progresses to dyspnea, has proven of undoubted value in a number of cases.

While these procedures to relieve the toxic condition and the local obstruction to the pulmonary circulation are being carried out, direct stimulation of the heart is of the utmost importance and should be begun as soon as the diagnosis is made and not delayed for the appearance of symptoms indicating cardiac failure. For this purpose our reliance should be placed upon strychnine, alcohol and ammonium corbonate or aromatic spirits of ammonia.

As soon as the diagnosis is made the strychnine should be begun in doses of 0.002 gram at four to six-hour intervals as indicated. The interval may be shortened and the dose increased as symptoms which call for such increase in dose appear. As much as 0.004 gram every two hours may be given hypodermically with the best results.

Next to strychnine, alcohol is our best stimulant. Nevertheless, in some cases it seems to produce decided cerebral disturbance, particularly in those addicted to its abuse. In such cases ammonium is a most useful substitute. These drugs are usually well borne by the stomach if combined with liquor amonii acetatis and administered in mucilage or milk.

In case of sleeplessness and restlessness chloralamid, chloral, Dover's powder, morphine and hyoscine hydrobromate are to be recommended in the order named; though with the thorough attention to the relief of toxemia by keeping the bowels and skin active, it is seldom that recourse to hypnotics is necessary.

To refer in any detail to the third indication in treatment, viz., to meet complications as they arise would carry me far beyond the scope of to-day's discussion; but I desire to say that under the eliminative supporting treatment outlined complications are rare.

Before closing I wish to utter a protest against the treatment of pneumonia by large doses of digitalis in the early stages of the disease as irrational and unscientific, being based on a wrong conception of the nature of the disease.

If our conception of the infectious nature of pneumonia is correct, by the time the chill has taken place the disease is established, and any efforts to jugulate the disease by the use of remedies employed to overcome or prevent pulmonary congestion are most certainly misdirected; for preventing the change in the lung—and it is doubtful if the digitalis treatment can accomplish this—certainly will not overcome the toxemia; two of the most serious cases of pneumonia that have come under my observation have had no pulmonary involvement demonstrable by physical signs.

The treatment of pneumonia by the pneumococcus antitoxin is the natural and rational plan from the recognition of the infectious nature of the disease, but so far the attempts to produce a reliable antitoxin serum that will preserve its antitoxic powers have not been entirely successful, and consequently there are very great variations in the reports as to the results obtained by its use.

I have recently had an experience that convinces me of the utter valuelessness of the antipneumococcic sera that are on the market and I feel sure that until we obtain a true antitoxin for pneumonia such as we have for diphtheria, we will get our best results by recognizing the essentially toxic nature of the disease and treating it along the eliminative supporting lines here suggested which may be briefly summarized as follows:

1. The sustaining of the metabolic processes of the individual by the administration of easily digested or predigested foods in small quantities at stated intervals, the administration of large amounts of pure water for eliminative purposes and the administration of oxygen gas by inhalation whenever the absorbing surface of the pulmonary mucosa is involved to such extent as to interfere with proper metabolic oxygenation.

2. Elimination, (*a*) by the liver and bowel through the vigorous use of calomel and salts; (*b*) by the skin through sweats induced by external heat; (*c*) through withdrawal of blood when indicated by right heart distention.

3. Stimulation of heart by strychnine, alcohol or ammonium carbonate, and in suitable cases by the subcutaneous injection of normal salt solution.

4. The local treatment of the lung by leeching, wet cupping or dry cupping as indicated.

In a former paper on the same subject, presented to the Section on Therapeutics of the American Medical Association, in June, 1901, published in the *Journal of the American Medical Ass'n.*, Nov. 9, 1901, I reported 168 cases treated according to the plan advocated. These cases are retabulated here:

Onset.	Termination.	Result.	Age.	Crises, Complications, etc.
1, 1, '91,	1, 24, '91,	Recovery,	76	
2, 1,	3, 10,	"	14	
7, 9,	3, 28,	"	39	
2, 15,	3, 14,	"	52	
4, 14,	5, 21	"	56	
8, 20,	9, 25,	"	82	
6, 31,	....	"	34	
11, 16, '92,	....	"	15	
1, 18,	....	"	29	

Onset.	Termination.	Result.	Age.	Crises, Complications, etc.
1, 18,	1, 31, '92,	Recovery.	74	
1, 31,	2, 20,	"	54	
2, 5,	2, 23,	"	22	
2, 7,	2, 21,	"	60	
2, 9,	2, 11,	Died,	35	Alcoholism; D. T.
3, 4,		Recovery,	37	
3, 6,	5, 20,	"	55	Chronic nephritis.
9, 30,	10, 14,	"	20	
10, 13,	11, 1,	"	35	
10, 26,	....	"	47	
1, 6, '93,	1, 21, '93,	"	23	Erysipelas.
1, 4,	1, 10,	"	21	
1, 9,	1, 25,	"	24	
2, 22,	3, 15,	"	24	
2, 26,	3, 11,	"	30	
3, 6,	3, 21	"	22	
3, 27,	4, 11,	"	45	
9, 13,	10 10,	"	48	Entire left lung; patient was bled 16 ounces twice.
11, 4,	11, 23,	"	23	
11, 13,	12, 19,	"	20	
11, 18,	12, 12,	"	35	
11, 23,	12, 8,	"	50	
11, 27,	12, 4,	Died,	62	Sick one week before treatment.
11, 20,	12, 28,	Recovery,	40	Tuberculosis.
12, 7,	12, 9,	Died,	60	Sick eight days before treatment.
12, 14,	12, 28,	Recovery,	57	
12, 16,	1, 4, '94,	"	45	
12, 26,	3, 20,	"	18	Endo- and pericarditis.
12, 27,	1, 9,	"	24	
1, 7, '94,	2, 4,	"	81	
1, 23,	3, 15,	"	32	
3, 8,	3, 29,	"	38	
3, 24,	4, 4,	"	32	
5, 20,	6, 6,	"	48	
7, 29,	8, 22,	"	81	
7, 30,	8, 24,	"	22	
9, 25,	10, 29,	"	82	
10, 7,	11, 21,	"	20	
10, 15,	10, 19,	Died,	27	Typhoid fever.
11, 3,	12, 5,	Recovery,	54	
11, 1,	11, 15,	"	29	
12, 2,	12, 24,	"	38	
11, 30,	12, 11,	"	20	
12, 9,	1, 4, '95,	"	12	
12, 10,	1, 2,	"	40	Double.
1, 11, '95,	1, 30,	"	43	Crisis tenth day.
1, 15,	1, 28,	"	21	
1, 17,	3, 14,	"	25	Typhoid fever.
1, 24,	2, 2,	"	33	
2, 2,	2, 19,	"	50	Mitral stenosis.
2, 12,	3, 7,	"	32	Crisis seventh day.
2, 13,	3, 25,	"	80	
2, 18,	3, 12,	"	38	Crisis ninth day.
2, 28,	3, 10,	"	32	Crisis seventh day.
2, 25,	3, 25,	"	25	
2, 25,	3, 26,	"	38	Developed lung abscess.
3, 19,	4, 17,	"	27	Crisis seventh day. Empyema.
5, 26,	6, 2,	Died,	50	Entire left lung; lower lobe of right.
9, 22,	10, 5,	Recovery,	30	
10, 20,	11, 13,	"	5	Crisis ninth day.
10, 20,	11, 11,	"	14	Crisis twelfth day.
11, 5,	11, 27,	"	70	
11, 6,	12, 3,	"	23	Crisis seventh day.
11, 5,	11, 30,	"	33	Crisis nineteenth day.
11, 3,	11, 22,	"	18	Crisis twelfth day.
11, 12,	11, 23,	"	23	Crisis tenth day.
11, 29,	12, 7,	Died,	33	Sick fourteen days before treatment. (Alcoholism.)
11, 23,	1, 8, '96,	Recovery,	67	Crisis ninth day.
12, 2,	12, 9,	"	25	
12, 1,	12, 13,	"	24	Crisis third day.
12, 2,	2, 23,	"	24	Crisis tenth day, followed by serous effusion.
1, 1, '96,	1, 19,	"	48	
1, 1,	1, 22,	"	48	Crisis ninth day.
3, 12,	3, 18.	Died,	48	Alcoholism; sick two weeks before treatment; crisis March 16.
6, 28,	7, 20,	Recovery,	50	
8, 12,	8, 31,	"	26	
8, 14,	9, 25,	"	83	
9, 17,	12, 8,	"	1 5/12	
9, 18,	9, 25,	Died,	12	Pericarditis.
10, 7,	10, 15,	Recovery,	30	
11, 4,	11, 16,	Died,	61	Chronic nephritis, myocardial degeneration.
11, 14,	11, 18,	"	25	
11, 14,	12, 16,	Recovery,	78	
12, 23,	2, 17, '97,	"	29	Double; crisis twentieth day.
1, 2, '97,	1, 25,	"	26	Crisis seventh day.
1, 9,	1, 26,	"	36	Crisis seventh day.
1, 17,	2, 16,	"	41	
2, 10,	3, 27,	"	25	Crisis ninth day.
3, 12,	4, 10,	"	62	Morphine habits.
3, 20,	3, 26,	Died,	24	Double, pericarditis.
3, 20,	4, 2,	"	65	Nephritis, sick eight days before treatment.
3, 24,	4, 14	Recovery,	26	Crisis seventh day.
3, 20,	4, 22,	"	44	
8, 30,	9, 22,	"	17	Crisis seventh day.
9, 25,	10, 15,	"	32	Crisis ninth day.
11, 15,	12, 10,	"	84	
11, 26,	12, 31,	Recovery,	65	Crisis ninth day.
1, 1, '98,	1, 18, '98,	"	8	Crisis ninth day.
1, 15,	1, 19,	"	20	Crisis seventh day.
1, 20,	2, 24,	"	21	Crisis tenth day.
2, 26,	3, 9,	"	24	Crisis seventh day.
3, 1,	3, 29,	"	44	Chronic nephritis.
3, 17,	4, 15,	"	37	Crisis tenth day.
3, 28,	4, 15,	"	14	Crisis seventh day.
3, 26,	4, 20,	"	28	Pseudo-crisis fourth day, real crisis seventh day.
7, 2,	7, 17,	"	16	Crisis seventh day.
7, 17,	7, 31,	"	82	Crisis seventh day.
10, 10,	11, 21,	"	35	Crisis seventh day.
11, 15,	12, 17,	"	82	Crisis tenth day.
11, 28,	12, 8,	Died,	46	Purulent pericarditis.
11, 11,	12, 9,	Recovery,	18	Crisis seventh day.
11, 27,	1, 22, '99,	"	30	Crisis fourteenth day.
1, 10, '99,	2, 6,	"	43	Crisis ninth day.
1, 11,	1, 13,	Died,	45	Sick seven days before treatment; entire left, upper right.
2, 3,	3, 2,	Recovery,	13	Crisis tenth day.
2, 5,	2, 25,	"	40	Crisis tenth day.
3, 11,	3, 20,	Died,	32	Alcoholism; D. T.
3, 26,	4, 29,	Recovery,	60	Crisis tenth day.
3, 27,	4, 21,	"	56	Crisis tenth day.
4, 19,	5, 15,	"	83	Crisis tenth day.
7, 5,	8, 14,	"	27	Crisis tenth day.
8, 8,	8, 19,	"	29	Crisis fifth day.
9, 21,	10, 27,	"	80	Crisis tenth day.
11, 25,	12, 16,	"	22	Crisis seventh day.
11, 25,	1, 8, '00,	"	51	Crisis tenth day.
12, 16,	1, 1,	"	35	Crisis tenth day.
1, 12, '00,	1, 16,	Died,	45	Double.
1, 24,	2, 27,	Recovery,	50	Crisis tenth day; cysitis.
2, 16,	3, 7,	"	58	Asthma.
2, 19,	3, 7,	"	54	Mitral obstruction.
2, 20,	3, 19,	"	62	Crisis tenth day.
2, 22,	3, 22,	"	35	Crisis tenth day.
2, 28,	4, 10,	"	17	Crisis tenth day.
3, 1,	3, 22,	"	34	Crisis seventh day.
3, 11,	4, 16,	"	34	Crisis tenth day; diphtheria.
3, 25,	4, 16,	Died,	38	Double.
3, 10,	3, 26,	Recovery,	23	
3, 20,	.. ...	"	26	
4, 1,	4, 6,	Died,	89	Edema of lung; asthma; dilated heart.
9, 12,	12, 13,	Recovery,	35	Relapsing penumonia; three distinct attacks, with crisis on seventh, tenth and ninth days respectively.
9, 29,	10, 12,	"	25	Crisis seventh day.
10, 9,	12, 1,	"	35	Entire right lung; crisis tenth day.
10, 16,	10, 26,	"	39	Crisis fifth day.
10, 5,	11, 3,	"	12	Crisis fifth day.
10, 21,	11, 24,	"	23	
10, 25,	11, 1,	Died,	67	
10, 31,	11, 27,	Recovery,	61	Crisis seventh day.
10, 25,	12, 18	"	46	Crisis tenth day.
11, 14,	12, 5,	"	35	Crisis tenth day.
11, 26,	12, 17,	"	19	Crisis tenth day.
1, 3, '01,	3, 7, '01,	"	54	Crisis tenth day.
1, 3,	2, 28,	"	82	Crisis tenth day.
1, 10,	1, 27,	"	50	Crisis seventh day.
1, 11,	2, 22,	"	50	Influenza.
1, 19,	2, 14,	"	40	Crisis tenth day; double pneumonia.
1, 21,	2, 12,	"	50	
1, 30,	2, 1,	Died,	46	Alcoholism; nephritis; entire left lung.
2, 21,	2, 27,	"	45	Double pneumonia.
3, 13,	4, 1,	Recovery,	49	Crisis seventh day.

There are in this report 168 cases with 21 deaths. Of those that died five had been sick a week or more before treatment was instituted, and so can not fairly be considered, two suffered with chronic nephritis, one had asthma and a dilated heart as well as being 89 years of age; one had typhoid fever as a complication and two entered the hospital with delirium tremens, no history obtainable as to the length of illness and died in less than 48 hours. If these cases are excluded, as I think they fairly may be, it reduces the number of cases to 157 and the deaths to 10, giving a death rate of 6.33 per cent. I have now to add to that report the following cases:

Onset.	Termination.	Result.	Age.	Crisis, Complications, etc.
5, 20, '01,	5, 31, '01,	Recovery,	35	Crisis third day; mitral obstruction.
9, 2,	9, 21,	"	77	Crisis tenth day.
9, 27,	10, 2,	Died,	48	
10, 1,	10, 21,	Recovery,	21	Crisis tenth day.

Onset.	Termination.	Result.	Age.	Crises, Complications, etc.
10, 2,	10, 30,	Recovery,	50	Crisis fifth day; double mitral lesion.
11, 11,	12, 2,	"	48	Crisis seventh day; mitral obstruction; chronic bronchitis.
11, 14,	12, 5,	"	30	Crisis ninth day.
11, 8,	12, 8,	"	35	Crisis ninth day.
11, 21,	12, 13,	"	22	Crisis seventh day.
11, 27,	12, 23,	"	35	Crisis eleventh day.
12, 16,	1, 2, '02,	"	56	Crisis fifth day.
12, 25,	1, 7,	"	57	Crisis seventh day.
2, 10, '92,	2, 27,	"	41	Crisis tenth day.
2, 19,	3, 4,	"	19	Crisis seventh day.
3, 5,	3, 19,	"	17	Crisis fifth day.
3, 11,	3, 30,	"	76	Crisis tenth day.
3, 1,	3, 31,	"	76	Crisis seventh day; chronic nephritis.
3, 2,	3, 31,	Recovered,	63	Crisis seventh day; chronic nephritis and bronchitis.
3, 24,	4, 5,	"	6	Crisis seventh day.
4, 8,	4, 13,	Died,	89	None; mitral insufficiency; dilated heart.
5, 18,	6, 17,	Recovered,	66	Crisis tenth day.
6, 6,	6, 30,	"	45	Crisis seventh day.
8, 6,	8, 28,	"	48	Crisis seventh day.
8, 2,	9, 16,	"	41	Crisis seventh day; alcoholic.
9, 2,	10, 25,	"	44	Crisis seventh and tenth day. Relapsing two distinct attacks.
10, 5,	10, 25,	"	32	Crisis fifth day.
10, 7,	10, 23,	"	18	Crisis ninth day.
10, 10,	10, 29,	"	23	Crisis ninth day.
11, 10,	11, 24,	"	64	Crisis seventh day. Dementia.
11, 1,	12, 5,	"	42	Crisis, eighteenth day; migratory pneumonia; jaundice.
11, 9,	12, 14,	"	17	Crisis seventh day.
11, 29,	12, 12,	"	18	Crisis ninth day.
12, 1,	12, 31,	"	41	Crisis ninth day.
10, 5,	1, 20, '03,	"	70	Crisis ninth day; arthritis.
11, 25,	2, 11,	"	38	Crisis eighth day, followed by empyema and operation.
1, 6, '03,	1, 26,	"	5/12	Crisis fifth day.
1, 25,	2, 24,	"	37	Crisis tenth day.
1, 30,	2, 21,	"	56	Crisis ninth day.
8, 31,	9, 30,	"	50	Crisis tenth day.
8, 31,	9, 10,	Died,	52	None.
7, 28,	9, 3,	"	54	Empyema; operated; two distinct pneumonic attacks with crisis on seventh and ninth days; nephritis.
10, 10,	10, 18,	Recovered,	44	Crisis fifth day; mitral insufficiency; glycosuria; entire right and lower lobe left involved.

The cases occurred in the service of Dr. Chas. G. Stockton, whose assistant I am, in the Buffalo General Hospital; in my own service in two other hospitals in Buffalo, and in my private practice. Forty-two cases are included in this report. These added to the 158 previously reported make a total of 200 cases with 14 deaths, a death rate of 7 per cent. An analysis of these fatal cases shows that five were over fifty years of age, being respectively fifty, fifty-two, fifty-four, sixty-seven and eighty-nine years of age; that one was alcoholic, three had pericarditis as a complication, one being purulent pericarditis, and the other three were cases of severe double pneumonia. If I include every case that has come under observation it makes a total of 210 cases with 25 deaths, a death rate of 11.4 per cent.

In the last edition of Osler's Practice it is stated: "The careful and thorough analysis by C. N. Townsend and A. Collidge, Jr., of 1,000 cases, at the Massachusetts General Hospital, shows that when all fatal cases over fifty years of age were omitted and those patients who were delicate, intemperate or the subject of some complication were excluded, the death rate was a little over 10 per cent."

This is the same death rate that I have, without excluding any cases whatever. If the same classes of cases were omitted from my report it would reduce the number of deaths to five and the death rate to 2.5 per cent.

As these cases are taken from both private and hospital practice, most of them being hospital cases, and not from a picked practice, I feel that I am justified in the conclusion that better results can be obtained from the method advocated than by any other plan of treatment of which statistics have come to my notice.

THE SANITARY ASPECT OF FOOD PRESERVATIVES.

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If an Egyptian fellah were offered as a gift one of our finest American steel plows, on condition that he abandon the use of his native one-handled, wooden plow, he would reject it with contempt. If asked if he was prejudiced against steel plows he would assert that he was not but would insist upon claiming for his wooden plow points of superiority over the former that made the latter immensely better. If foreign merchants should endeavor to push the sale of steel plows in that country there can be little doubt but that an organized effort would be established to suppress their use. So thoroughly fixed in human nature is the conservative instinct that it would be surprising to find any new and really good thing that did not meet opposition from some quarter. Food preservatives, like plows, have been in use from time beyond memory and yet recently introduced ones are subject to bitter opposition from people who dislike any change in food products. Like the Japanese woman who said, "Oh how disgusting" when told that Americans drank milk from cows these people have a sense of fear or disgust at an innovation which they dislike. In a prize essay on Preventive Medicine, lately published, the author says: "The use of chemical preservatives in food is to be prevented by stringent legal enactment." The author evidently intended to say "*modern* chemical preservatives" and "*ought* to be prevented" but in his haste got his meaning obscured. He surely did not intend to have laws forbidding the use of sodium chloride, acetic acid, or ethyl alcohol. These chemicals are so thoroughly established in popular favor, for this purpose, that any effort at stopping their use would be as futile as trying to sweep back the Atlantic ocean with a broom. When the term "chemical" is attached in this way to food preservatives it is because the author thinks it carries an opprobrious sting, forgetting that the old-fashioned preservatives are as much chemicals as are the more recent ones. The constituents of vinegar, salt, alcohol and smoke that render them antiseptic possess no superiority over the articles which biased people wish suppressed by law. Table

salt, the one most commonly used as a preservative of meat, has more serious drawbacks than its recent substitutes. In the first American edition of Wagner's Chemical Technology (p. 795) we are told that "salt, however, not only withdraws water from meat but also, as has been proven by Dr. Liebig's researches, some of the very best and essential portion of the juices of the meat, including albumin, lactic and phosphoric acids, magnesia, potash, kreatin and kreatinin. Hence it is clear that unless these substances are in some way or other added to the salted meat, its use as food for a lengthened period cannot fail to become injurious to the system, and it is surmised that scurvy is due to this condition of salt meat." Dr. Burnet declares (Wood's Med. and Surg. Monographs, Vol. XI, p. 598) that "Experience is not wanting to prove that cases of scurvy are, in the absence of complications, rapidly cured by dietetic means." He also informs us that of late years the number of cases of this disease has very markedly decreased. The decrease, it is important to note, is coincident with the adoption of modern preservatives. As barreled, corned beef, salty salt bacon and brine-preserved fish have grown into rare commodities, scurvy has diminished in intensity and frequency. Osler tells us (Practice, p. 393) that "the salted sturgeon used in parts of Russia has sometimes proved fatal to large numbers of persons." We thus see that besides scurvy there are other dangers attached to the use of salted foods. Salt is so poor an antiseptic that bacterial invasion of food is a danger to be counted with. In a quite extensive epidemic of pleuropneumonia that occurred in Middlesbrough, England, mentioned by Allbutt (System of Medicine, Vol. III, p. 789) we are told that "the investigations of Dr. Ballard clearly traced the source of the epidemic to the use of American (salted) bacon. . . . This bacon was proved to be poisonous to animals fed with it, and lung lesions were produced."

In some experiments performed by Prof. E. K. Dunham, of Bellevue Hospital Medical College, for Dr. E. L. Keyes, of New York, (Trans. Cong. Amer. Phys. and Surg., Vol. III, pp. 163, 164) it was found that while one part of salicylic acid in 960 parts of solutions would kill *Staphylococcus pyogenes aureus, Streptococcus pyogenes,* and *Bacillus coli communis* in two minutes one part of sodium chloride (table salt) in three parts of solution made not the slightest impression in ten minutes and in one experiment they were alive and vigorous in twenty-four hours.

Is it then any wonder that bacteria can thrive in salt while salicylic acid as a preservative is so much superior? These experiments did not show how very much superior the acid may be since far more acid was used than enough to produce the same feeble effects as did the salt. They merely show that the acid is far more than 320 times as potent as the salt. They also demonstrated that the salicylic acid is immensely safer to use than salt, so far as the effects, power for power, are upon the consumers. One can safely swallow, without the slightest inconvenience, 20 grains of salicylic acid, but we would pity the human being that ventured upon using at a single dose 6,400 grains of salt.

Here we might add that in spite of all the hue and cry of interested parties against salicylic acid that in an examination of every work on medical jurisprudence and toxicology found in three large libraries, one of them being an exclusively medical library, not one contained any reference to death from this substance. The works of Herold, Clarke Bell, Woodman and Tidy, Blyth, Reese, Hamilton and others were among those consulted. They showed deaths from tartaric acid, citric acid, acetic acid, from overdoses of ethyl alcohol, etc., but not one from salicylic acid. Evidently Prof. Hobart A. Hare had a somewhat similar fruitless hunt in getting together material for his article on salicylic acid in his Practical Therapeutics, or his Boylston Prize Essay of Harvard University for he tells us that so far as this acid is concerned "it is worthy of remark that very few deaths have taken place" (p. 343). Cushny, in his Pharmacology and Therapeutics, third edition (p. 423), tells us that it "is poisonous only in comparatively large quantities." On page 31 of Blyth's work on "Poisons," 1884, a table is given of all deaths from poisons in Great Britain for ten years in which tartaric acid, acetic acid and alcohol show rates of 12 to 17 deaths in each ten thousand of population but not one for salicylic acid or any other modern preservative.

With this array of facts what can be thought of those who strive to create terror in the public mind against so decidedly useful an article? Why seek to suppress an article that has a showing so clean that it is almost impossible to find a record of a death from it and yet complacently permit baking powders to be sold, without let or hindrance, when tartaric acid has killed so many? Why permit people using vinegar when acetic acid counts its deaths by scores or citric acid when its record is nearly as bad? It may be said that the latter are not used in concentrated form and they are usually consumed in the form of their salts. But this is equally true of salicylic acid. It is as senseless to condemn the use of salicylic acid, as diluted in food, as it would be to make a law, forbidding any ones selling lemons to the public. Citric acid is poisonous, it has killed scores, it is not a normal constituent of the body, it impairs digestion in its salts, and against it can be urged most of the stock arguments opposing food preservatives. Experimental evidence as well as the testimony of the results of use on millions of human beings both conspire to demonstrate the harmlessness of modern food preservatives, in the quantities required for such a purpose, and, because few have cared to battle with conservatism, they have been mercilessly and senselessly condemned. Immense as is the consumption in all parts of the

world not a single death has ever been recorded against their use in this capacity. Nor has the first case yet been found where deaths from foodstuffs protected with salicylic has been reported. Unprotected food, canned foods, that it is fair to assume were pasteurized or had been treated to high temperatures in an attempt to sterilize, salted foods, smoked foods, and dried foods have been fairly proven guilty of causing death. With so many people opposed to the use of salicylic acid in foods it is pretty certain that if any of the reported cases of meat, canned fish and other poisonings had contained it there would have been no hesitancy in telling this fact. Allbutt tells us that in the epidemics of food poisonings he had referred to one important feature "is that the outbreaks almost invariably occurred from food which had been prepard a day or so before being eaten—as if the infective micro-organism had gained access to the food after it had been cooked." (System of Medicine, Vol. III, p. 790). Anders speaks of mince meat, "warmed over" and carelessly kept kitchen salad as having caused "violent symptoms of poisoning" (Practice, p. 1,219). If these authors are reliable—and they are among the best in the world of medical science—then pasteurizing and sterilizing of food does not save the public from danger. If deaths and sufferings from severe food poisonings occur from kept-over food how can anything short of treatment with reliable preservatives save the careless public? If multitudes have been killed and other multitudes tortured in a most agonizing manner by the use of unprotected foods and not one soul has ever been shown as a sufferer from modern protected foods where is the wisdom in passing laws forbidding the use of protectives?

Is there any evidence in vital statistics of the ill effects of the rising tide of chemically preserved foods. The millions of tons daily consumed in all parts of the world should give some evidence of bad effects, if there are any. Places that consume most should show the highest average death rate in diseases of the intestinal tract. Have there been any signs of reduced public vitality during the years in which the consumption of preserved foods has been on the increase? Why do not the enemies of food preservatives consult such statistics and give us the figures that prove their contention instead of dealing in bald assumptions? Let us see if we can find out. The use of food preservatives of the condemned kind has been growing with more than tropical vigor for over thirty years. It is common knowledge that during the same time public health has been improving in a somewhat similar manner. There is then nothing in this that favors the idea that modern chemical preservatives are bad. The coincidence in time of the improvement in public health and in the increased use of preserved foods is remarkable. The improvement may have been in spite of the use of the preservatives but if it has the preservatives could not have seriously impaired the disease resisting power of the millions who have used them or the epidemics of influenza, and other contagious diseases, should have cut a deeper swath. The fact that the germs of such diseases, after gaining lodgment in human bodies that should have been weakened in resistance, did not decimate the population, as measles decimated the Fiji Islands, should be taken as some evidence that the theory of such weakening cannot be true. In 1886 the chemist of the Department of Health of the City of Brooklyn, N. Y., appealed to the Commissioner for the right to make raids upon brewers for using salicylic acid in their beers (*American Analyst*, April 1, 1887). He said: "I am of the opinion that it is time that the addition of salicylic acid to articles of food receive a check at the hands of sanitary authorities. I have made examinations of several different kinds of bottled beers manufactured and sold in this city, and have found a number of them to contain salicylic acid. The list examined contained some of the Western beers, which were also found to contain it. I would respectfully recommend that some action be taken by this Department toward the prohibition of this injurious adulteration." In this report we probably have the beginning of the systematic raids against food preservatives that have been going on in this country ever since. It is quoted by the chemist of the Department of Agriculture (Bulletin 13, p. 301) as "a very strong argument in favor of prohibiting entirely the use of this preserving agent." The Brooklyn chemist got the right to check the use of this agent and used that right. What were the results? Did the health of Brooklyn improve? In 1886 the death rate in that city was 22.5, in 1887 it rose to 23.5, in 1888 to 24.0, in 1889 it kept to 23.7 and in 1890 it made another ascent to 24.5. Here we see a steady increase in the death rate during the very years in which the raid was kept up. It is true that the raid may have had nothing to do with raising the death rate but it is equally true that these figures do not prove that the raid did the people of Brooklyn any good. During those same years Philadelphia allowed salicylic acid to be used in the beer of its citizens and the death rate was 22.1 in 1887, 20.3 in 1888, 20.0 in 1889 and 20.7 in 1890. Boston, that like Philadelphia, failed to make a crusade against salicylic acid, showed a death rate of 23.9 in 1887, 23.7 in 1888, 23.3 in 1889, and 23.7 in 1890. That the death rate should rise in the city which sought to suppress the use of salicylic acid and either sink or remain stationary in the two neighboring cities of about equal size is, to say the least, peculiar, and that peculiarity is emphasized when we learn that the larger city of New York, with only a river to separate it from Brooklyn, had a sinking death rate during the same years.

A study of the vital statistics of the United States as found in the Report of the Twelfth Census, published in Vol. III, 1902, gives us some highly interesting figures in connection with this subject. If the opponents of food preservatives have not taken the pains to look

into this part of the subject the writer would earnestly commend it to their attention. Here we find the unbiased report of the results of a trial of the effects of preservatives on Eighty Millions of people. This is certainly a much larger "poison squad" than Dr. Wiley ever could get under his supervision. Let them turn to page *227* and look at the table giving the death rates per 100,000 from diseases of the stomach. In such diseases, if in any, the bad effects of preservatives should be discoverable, for reasons that are no doubt obvious to the dullest intellect. Let us consider the statistics for 1900.

It is a well-known fact that city people consume more beer—salicylated and unsalicylated —than do country people, man for man. It is an equally well-known fact that country people raise nearly all the food consumed by themselves and that they are therefore not compelled to depend upon so-called "doctored" foodstuffs. The pork is that of their own salting. The butter is that of their own making. Their jams and jellies, fruit juices and homemade wines seldom know any stronger preservative than white sugar. their milk and cream are untampered with. What do the statistics of the United States Census collectors tell us about their superior health and particularly their freedom from affections of the stomach and alimentary canal, as compared with their "poisoned" brothers of the cities? The total for every State where registration of such facts was procured gave the death rate from such diseases as 18.1 in the cities and 20.7 in the rural districts. In Maine for every 16 city men that died from diseases of this kind there were 19 country men perished. In Massachusetts, for every 147 city men there were 166 country men; in Michigan for every 198 city men there were 207 country men; in New Hampshire for every 201 city men there were 213 country men; in New Jersey for every 196 city men there were 216 country men; in New York for every 182 city men there were 217 country men; in Rhode Island for every 134 city men there were 145 country men; in Vermont for every 194 city men there were 252 country men. Surely the people who denounce preservatives in foods can get but small consolation from such figures as these. Will they kindly come forward and tell us what it means? Can it be possible that nature herself has conspired to demonstrate what they believe to be the sacred truth is after all a mistake? Now let us examine these same figures geographically. Vermont, whose citizens are chiefly found in villages, small towns, and on farms shows a death rate, from diseases of the stomach, of 24.4, while Massachusetts, with its teeming multitudes of factory workers, compelled, from economy, to almost live on preserved goods, had next to the lowest death rate, from such diseases, of any State in the Union. For each 208 deaths from stomach diseases in rural Vermont there were only 151, or less than two-thirds the number in Massachusetts. The packed, ill-housed, salicylated beer-drinking, preserved-food-eating population, of factory covered Rhode Island, showed the lowest rate of any State. If salicylic acid damaged their stomachs very much they certainly do not show it in their vital statistics. Maine, with its practically successful attempt at prohibition, showed 184 deaths of its citizens from such diseases as against only 138 for the same number of persons in salicylated beer-drinking "Little Rhody."

If we turn now to the table showing "for each grand group in the United States, the proportion of deaths from diseases of the digestive system during the census year, per thousand deaths from known causes in the aggregate and by sex, for the cities and rural districts" we find the same preponderance for the whole United States as was shown by the first table for the registration States. We also see that it applies with equal force to a larger class than diseases of the stomach, but still to diseases that would primarily, be expected to first respond to any ill effects that might exist in preservatives. Each of the 21 grand geographical groups tells the same tale of death for country people as against city people. But now we come to a still more startling fact, that we hope our pure food advocates will study with great care. It is an undisputed fact that fewer women drink beer than men and that of those women who do drink beer proportionately less is used by them than by men. Their chances, therefore, for consuming large amounts of salicylic acid—as well as of alcohol, which is also antiseptic—are less than are the chances of the men. If salicylic acid is the dangerous thing, which anti-preservative men wish us to consider it, then those whose chances for using the largest amount of it are greatest should suffer most. This certainly must appeal to everybody as a fair inference. Now, what are the facts, as given by the statistics, for every one of the grand geographical groups? With very few exceptions, and these of regions containing great numbers of negroes, the deaths from diseases of the digestive system are highest among women. The refined, non-beer drinking women of the north, east, and west died faster of such diseases than did their beer drinking husbands. The coarse, masculine-like negro women of the south, with habits much like those of husband, brother and father, kept close to, or went below the death rate, from such causes, as males. Those of cities, who ape their more refined Caucasian sisters, showed a much closer agreement to the death rate of the whites. More of them died than of the men in the Southwest Central Region, the Southern Interior Plateau, and the Ohio River Belt. In the country part of these regions more men died than women. In the Gulf Coast Region more men died than women, of such diseases. The negro women of the Gulf Coast do not so readily imitate white woman's habits of life. If we now turn to the geographical totals we discover a few more significant indications that the disuse of preservatives does not conduce to lengevity as it ought to

if the opponents of their use are right. Take, for instance, the prairie regions of our country. There the deaths from diseases of the digestive system are 732 per ten thousand.

Compare this with the North Atlantic region. In the prairie region there is a majority of farmers and residents of small villages. In the North Atlantic coast region the majority are denizens of cities and extensive users of preserved foods and salicylated wines and beers. In this latter region there were only 476 deaths, from the diseases named, in ten thousand. In the still more rural population of the northwest timber belt, where cities are few and far between and where roads are bad and transportation expensive, the deaths were 746 in ten thousand. There beer is probably a rarity, preserved goods unnecessary and home produced provisions the rule. The prairie belt does not show as high a death rate as the northwest timber belt, even if it is the very highest for all other regions of the populous part of the United States. These are significant facts that we would like to have those explain who denounce the use of preservatives. What is it that makes the users of salicylated and borated foods appear to be so much freer from disturbances of the digestive system than those whose location would seem to negative the supposition that they use such foods freely? We will wait for a reasonable explanation of this condition of things from those who tell us that disaster and disease are the lot of the average user of foods preserved by antiseptics.

As if in mockery of the exceeding positiveness of the enemies of food preservatives the statistics supplied by our census gatherers show figures that are still more emphatically against the former at the very places where, of all others, they should have sustained their contention. Take, for instance, our ministers of the gospel, who are, as a class, opposed to the use of beer, and compare them with saloon-keepers, a very large proportion of whom drink beer, and what do we find? The death rate of clergymen is 23.5 per 1,000 and that of saloon-keepers only 13.3 per thousand. No matter what the causes may be that make so fearful a difference one might expect to find a better showing for the men who are not being dosed with "doctored" beer from morning till night, from January to December, as the saloon-keepers are. Neither is it disease of the nervous system nor greater age that wholly cause this wide difference. Since the death rate in clergymen from diseases of the digestive system was 106.5 and that of saloon-keepers, from the same cause, was only 60.4. The men whose stomachs and intestines were injured (?) by salicylic acid seem to have been benefited by the so-called injury, while those who, according to the theorizing enemies of protectives, should have had the fewest cases of this kind of disease had enormously the most. It is a favorite idea of these theorizers that the kidneys eliminate all salicylic acid and that these organs are injured by such eliminating. While the theory lacks a basis of fact we wish here to point out to them that the ministers had a death rate of 438.6 from diseases of the urinary system and the saloon-keepers only 126.6 from the same disease. Does this indicate that salicylic acid injures the kidneys? How glorious an illustration this would have been for them if the figures had been reversed.

Over three times as many ministers as saloon-keepers with such diseases constitutes a fact that we hope the anti-salicylic acid people will ponder over when next they discourse upon the dangers of this acid to the kidneys. Now, let us turn to the German element ot our population. They certainly get as much salicylated beer as any other of our citizens. Suppose we compare them with the Irish-Americans. The latter, as a rule, prefer whisky to beer, and as whisky is not salicylated it will give us a good chance to discover if there is damage done by the salicylic acid upon our German-Americans. In order the more certainly to settle the point regarding the part played by the alcohol in the matter let us consult the figures on alcoholism. Those Americans having Irish mothers have a death rate of 17.7 from alcoholism while those whose mothers are German have only a death rate of 6.1 from the same cause. With very nearly the same numbers of persons, within the registration regions, the Irish have nearly three deaths to every one among the Germans, from alcoholism. In diseases of the stomach the Irish-American death rate is 25.8 and the German-American only 17.7. Is it the salicylic acid which the Germans take that benefits them? Again, let us turn to the favorite idea of the foes of preservatives who claim that salicylic acid damages the kidneys. Here we have figures that bring us right down to the kidneys alone. The death rate among Irish-Americans from Bright's disease is given as 134.8 while for German-Americans it is only 86.8. Can it be possible that our census takers conspired with the antiseptic sellers and have falsified the returns? Turn to these returns in whatever direction we please and they all seem to indicate that there is something wrong with the theories of the enemies of food preservatives. While there are doubtless many factors at work causing the remarkable figures here presented, one thing seems quite certain, that they fail to indicate the slightest evidence of harm in the directions that harm should appear, if preservatives were injurious to public health.

In view of the fact that vital statistics give not the slightest encouragement to the idea that food preservatives tend to impair the action of our digestive organs, it might be well to enquire as to whether there is anything in the nature of the most efficient preservatives to, in the slightest degree, support the gratuitous assumption of their opposers. When we were ignorant of the distinction between enzymes and microbes we called them both ferments. How simple was the inference then made that what would hinder fermentation must hinder or hurt ferments. When

digestion was found to be a kind of fermentation, how easy it was to assume that anything that would kill a ferment, *i.e.*, microbe, would stop digestion. Prof. Sedgwick tells us in his Principles of Sanitary Science (p. 347) that "there is perhaps no subject in which popular errors are more prevalent than in sanitary science," and the fermentation error is one of the most common. It originated in ignorance and is perpetuated by the same agent. Enzymes are as distinct chemical bodies as are sugars or salts, and are therefore subject to chemical laws while microbes are living entities that are injured or killed by their special poisons. If salicylic acid is deadly to the yeast plant it in no way follows from this that it is destructive to pepsin, trypsin, diastase, or any other enzyme. If it arrests the fermentative action of the yeast by killing the plant what earthly connection can any sane mind see between this and inhibiting the production of peptone by keeping pepsin from supplying a hydroxyl group to albumin. Alcohol encourages the growth of the vinegar plant but interferes with the action of pepsin. Hydrochloric acid aids pepsin in its action but kills many kinds of pathogenic bacteria. Where then is there any room in sane thought for the conception that what will hurt a living ferment will hinder a nonliving enzyme. On the strength of this exceedingly silly delusion laws have been passed condemning and forbidding the use of food preservatives in a number of States. Analysts, ignorant of the origin of this superstition, keep repeating it as a truth, in their reports, from year to year. Nearly every substance under the sun has some retarding effect upon enzymes. This is not because they are able to kill living ferments. On the contrary many of them are the special food of such ferments. Salicylic acid is an exceedingly potent destroyer of organized or living ferments and there is no doubt but that like nearly every other substance it does interfere with the action of pepsin, trypsin and diastase. Its action on the latter, however, bears not the slightest relation to its action as a destroyer of bacteria. In the small amounts in which it is used in foodstuffs it retards digestion but little. When its compensating quality of acting as a stimulant to the stomach is brought into play it overcomes its retarding power and really becomes an aid to digestion. Under the head of Physiological Action, Bartholow says of it: "In small doses salicylic acid may stimulate digestion" (Materia Medica, 1903, p. 391). Cushny, in his Pharmacology and Therapeutics, tells us that "the salicylic preparations produce a slightly augmented flow of bile" (p. 416). They are therefore aids to the healthy action of the intestines.

If the oft-repeated charge that salicylic acid interferes with digestion was true—and as true as the enemies of food preservatives try to make it out to be—what of it? This question may stagger them. The claim that the rendering of part of the food we eat indigestible is injurious to health is another superstition of so-called sanitary science. In our present stage of civilization it would be a blessed thing for more than half the people if something could be given them to do just what these theorists imagine food preservatives do.

Brunton, in his interesting "Lectures on the Action of Medicines," says: "Constipation in ordinary people is generally due to the fact that the food they take has little or none of the stimulating qualities that ordinary diet would have in uncivilized countries. . . . They ground their wheat in the handmill, and then baked their bread of this coarse meal, but such meal is hard and gritty, and contains a great deal of indigestible residue, which would tend to keep the bowels of those taking it regularly active. Nowadays we have wheat so finely ground that all the indigestible outer part is taken away from it, and we have nothing but the starchy interior of the wheat remaining." It is a trite saying that most men eat too much and it would be a blessing to them if someone would supply them with something that would render part of what they eat indigestible and at the same time antiseptic. Every step in our progress toward the preventing of disease germs being carried into us by our nitrogenous food has resulted in lessening the digestibility of that food. Cooking renders meat, eggs, milk, fish, etc., harder to digest. The use of salt, smoke, drying, alcohol, and vinegar all increase the indigestibility of the food on which they are used. Sterilizing does the same. Where then is the sense of hurling condemnation at the newer chemical food preservatives for doing just what all other methods of protecting food from infection do, particularly as the so-called evil complained of is really not an evil but a blessing. The ideal, perfectly aseptic condition of food is something everybody would like to have. But it should remain aseptic till eaten. The time will probably never come when such an ideal will be reached.

The attempt of half informed people to hasten its arrival, by bowing down to the fetish of legislation, can only accomplish what all crude attempts at reform invariably accomplish, retardation of progress. Imagine laws being passed forbidding the use of antiseptics by medical men because their action produces results inferior to the aseptic treatment of wounds. What would result? It is plain to be seen by every medical man that aseptic conditions are only possible under certain favorable conditions. Much as one might wish to treat every wound aseptically in practice it is impossible. A law compelling aseptic treatment or none would simply be a law signing the death warrants of thousands of innocent victims. The conditions here are perfectly analogous to those that exist in the protection of food. Can it be possible that our State laws which prohibit the use of modern antiseptics in food are the signed death warrants of multitudes of people? To many intelligent men and women it looks that way and the vital statistics of our country point in the same direction.

MEDICAL PROGRESS.

OBSTETRICS AND GYNECOLOGY.

Tuberculosis and Pregnancy.—An excellent summary of the views held at the present day of this important question is given by W. Hahn (Berl. klin. Woch., Dec. 28, 1903). He also reports five cases which came under his own observation. He states that pregnancy is a severe complication of tuberculosis, the severity of which increases with each pregnancy. Important among the prophylactic measures should be the prevention of conception among tuberculous women. If pregnancy has taken place the woman should be kept under careful medical observation, and if the tuberculous disease grows worse, abortion should be strongly recommended. During the later months of pregnancy the induction of premature labor does not offer any advantages over labor at full term, and is fraught with seriousness for a tuberculous patient. Moreover, as a tuberculous mother may give birth to a healthy child with fair chances of good health later on, it would be unfair to needlessly sacrifice the life of the infant. He does not believe in universally interrupting the pregnancy as advocated by Maragliano and Hamburger.

Separation of a Normally-situated Placenta.—The early separation of the placenta during labor is a rare and dangerous complication, and it is not commonly known that this accident may happen with a normal placental insertion. G. Schickele (Münch. med. Woch., Dec. 22, 1903) states that hemorrhage early in labor is the prominent symptom; it may be internal or external, sudden or gradual in onset and ofttimes its effects upon the system are rapid and pronounced. In the worst cases the entire placenta separates at once, but more often the dissection takes place more slowly and by virtue of a retroplacental hematoma. The placenta sometimes falls out of the vulva directly after birth, sometimes the third stage takes a perfectly normal course. The prognosis is fair and the treatment calls for dilatation of the cervix and rapid delivery with the forceps or version. Since the fetus is generally dead, craniotomy will often be indicated. The etiology is obscure, but often a necrosis of the decidua is found, probably due to vascular disease.

Hernia of the Genital Organs into the Inguinal Canal.—Hernia containing either Fallopian tubes or ovaries is a very rare condition, says Leopold Le Noüene (Gaz. de Gyn., Nov. 15, 1903). There are in the literature not more than a dozen cases of hernia in the inguinal region containing the uterus outside of pregnancy. The writer has observed two cases in the service of Dr. Sorel; one, a simple hernia of the adnexa and the other a hernia of the uterus and the adnexa, the tubes of which were in a suppurating condition. In the first case the right ovary seemed to have entered the sac and to have been followed by the tube, which, according to Lockwood, always takes place in this condition. Curveilhier and Dolbeau hold that the tube is the first to prolapse and the ovary then follows it. The majority of genital inguinal hernia show either inflammatory or neoplastic changes in the genital organs (cystic degeneration, dermoid or hydatid cyst or cancer). Peuch reports 98 cases of malformations where there were various anomalies, such as female hermaphrodism, absence of the uterus or an infantile state of this organ. It is certain that in the larger majority of the cases the inguinal hernia is accompanied by some malformation of the genital organs. In the author's second case, both tubes had entered the hernial sac first, but the ovaries had been dragged in later. There was also present a double pyosalpingitis. Operation was rendered difficult because of this condition. The patient was operated upon because it was thought that she had a strangulated hernia, but there were no signs or symptoms of intestinal obstruction present.

The Blood and Urine in Eclampsia.—For the purpose of deciding whether eclampsia is a consequence of insufficient renal activity and can therefore be ascribed to a uremic intoxication, an investigation was carried on by W. Zangemeister (Archiv f. Gyn., Vol. 70, No. 3). An explanation of this should be secured from examinations of both blood and urine. Before any opinion can be expressed on abnormal conditions, it is necessary to be acquainted with the normal relations of blood and urine as found in healthy pregnant women. The same author has already shown that the physiological make-up of blood and urine in pregnancy varies considerably from the non-pregnant state. From an examination of a large number of specimens of the blood taken from eclamptic cases, he does not find that there are any points upon which the uremic etiology of the diseases can be based. There is a diminution in the alkalinity of the blood, and at times an increased molecular concentration, together with a larger amount of crystalloidal nitrogenous bodies, but these must be considered as an accompaniment of the diminished diuresis which is usually present during the course of the disease. The factors just enumerated are subject to greater variations in the blood of eclampsia patients than otherwise. The most noteworthy appearance in eclamptic blood is the extreme variation in the quantity of red cells to the quantity of the blood plasma. The blood contains on an average a larger number of red cells, and in fact may be compared to a "paste of corpuscles." The rapid disappearance, and even more so, the rapid formation of this condition, shows that the cause of this phenomenon is not to be found in an overproduction of these elements. The proliferation itself does not represent the cause of the eclampsia, as it is absent in many instances. Nor does it result from the attacks, as it may appear without any seizures having been present. The only way in which the phenomenon can be explained is that during the course of the disease severe circulatory disturbances occur, as a result of which a considerable amount of plasma leaves the blood. Concerning the urine of normal pregnancy, the author has shown that during the last month, there is an increase in the amount passed during twenty-four hours, the ammonia salts are slightly increased, and the chlorides are about the same as in the non-pregnant woman. The phosphates are, as is well known, decreased in amount—this being ascribed to the fetal bone formation. During labor it was found that less water and salts were excreted by the kidneys than during the period immediately preceding. Especially is the excretion of chlorides diminished; that of the phosphates and ammonia salts is less marked. A very complete series of analyses was then made of the urine of numerous cases of eclampsia. These do not admit of being abstracted and the results obtained do not lend themselves to an explanation of the manner in which the irritation of the vasomotor centers is produced. Whether this is due to toxic conditions or to a reflex nervous disturbance is therefore still a matter of doubt as far as the author's findings are concerned. If one has to do with a toxemia, it may be stated with considerable certainty that the poison does not result from insufficiency of the renal function nor does it leave the body through the kidneys, unless in an entirely changed form a considerable time after the disease has subsided. In other words, for the elimination, or more properly the destruction of this hypothetical toxin, the renal function is not called into play. The poison, moreover, does not bring about any increase in the molecular concentration of the blood. The changes found in the

body in an eclampsia case may also be accounted for without the intermedium of a poison. The author brings forward the following facts as against the idea that a toxin is present: The earlier the course of the pregnancy or the later in the puerperium the attack comes on the more severe it is apt to be, and it is more apt to occur with the first labor pains than after these have been present for some time and have produced a toxin or thrown the same into circulation. Although there may be some basis in fact for assuming the toxic theory, the author is inclined to the belief that this is questionable and that later investigations will show that the eclamptic attack is brought about in some other way, possibly as a purely reflex nervous phenomenon.

Paralysis of Abdominal Sympathetic Following Labor.—After abdominal section, this condition is not of rare occurrence, especially in those cases where a large tumor has been removed from the abdominal cavity. After delivery, Edward P. Davis (Am. Jour. of Obstet., Dec., 1903) finds that there are certain cases where the fetus is unusually large, where there is polyhydramnios or in exhausted women, the same condition is observed. Here the author reports a case where there was no hemorrhage, the child small, and the mother was not exhausted. She was highly neurotic. Her excretions required frequent stimulation during pregnancy. During delivery, extensive laceration was threatened, so the patient was immediately anesthetized by ether and easily delivered with forceps. After labor she complained much of general abdominal pain, and upon examination a doughy mass was found in the left upper portion of the abdomen. Cathartics failed to produce good results, but were succeeded by vomiting and gradually increasing distention of the abdomen. Efforts to move the bowels by enemata were unsuccessful. The temperature varied from 99° to 102° F., but symptoms of sepsis were wanting. Rectal examination showed that there was fecal impaction. The patient was stimulated and given large ox-gall enemata. On several nights there were attacks of syncope. Gradually with this treatment the fecal mass was softened and the bowels cleared. Later predigested food was taken and retained, and she finally made a tedious recovery. Examination after convalescence showed the pelvic organs to be normal, the abdominal walls contracted and tenderness absent.

The Value of Vaginal Cæsarean Section.—There are over 60 cases of vaginal Cæsarean section reported so far, says M. Stamm (Am. Jour. of Obstet., Nov., 1903); the majority of them were undertaken for cancer of the uterus, but the number performed for puerperal convulsions is also rapidly increasing, and it seems that this trouble will furnish the chief indication for the operation in the future. Most authorities seem to agree that rapid delivery is the most important measure in reducing the mortality in eclampsia. The operation consists in exposing the uterine portion by a large speculum or forceps and grasping it with two pairs of forceps on either side of the os. A longitudinal incision 5 to 7 c.m. is then made in the anterior wall of the vagina, down to the os uteri. The loose cellular tissue is then opened with scissors, between the bladder and the cervix. The bladder is pushed back, with a small piece of gauze, and as far as the internal os, and, corresponding to the height, a sagittal incision through the anterior wall of the cervix is added. The upper margins of the wound are grasped with forceps in a manner similar to morcellement and myotomy. This exposes a further portion of the womb, the bladder is pushed up more, and another incision is made through the lower segment of the uterus. If this maneuver is repeated a few times an incision of 8 to 12 cm. can readily be made under the guidance of the eye and without opening the peritoneum. This incision is generally large enough to admit the hand and to extract the mature child. Should it not be sufficient, however, a similar procedure can be followed at the posterior portion. In the majority of the cases it is perhaps best to wait for the natural expulsion of the placenta, or, if it does not follow soon, some pressure can be made upon the uterus. This operation is best done in a hospital, though it can be performed at the patient's house if circumstances are such as to make it an operation for an emergency.

Pseudohermaphrodite.—The essential organ of generation and that which must in the final analysis determine the sex, is the presence of the testicle in the man, and the ovary in a woman. The true hermaphrodite, says J. Riddle Goffe (Am. Jour. of Obstet., Dec., 1903), must possess both these organs. No case of unilateral hermaphrodism has ever been reported. The cases of the older writers usually fall under the bilateral. They are all of doubtful authenticity. An individual with functionating glands of both sexes provided with excretory ducts has never been discovered. The author reports the case of a 20-year-old woman. On examining the genitals an enlarged clitoris with prominent glans obtruded itself and became erectile on the slightest touch. It was surrounded with a corona of hair and surmounted on the mons veneris with a luxuriant tuft. The clitoris measured three inches in length and three and one half inches in circumference. The foreskin could be drawn forward on to the glans, but contracted strongly in erection. A narrow strip of mucous membrane ran along the free border of the frenum, as in cases of hypospadias. The clitoris was impervious and the meatus urinarius could not be discovered. Below the introitus was a broad perineum reaching to the anus. The vaginal opening took a Peaslee sound readily to the depth of 4½ inches, and the caliber of the canal seemed to enlarge at its distal end. Under bimanual manipulation with the finger in the rectum, no internal generative organs could be outlined except a cord-like extension from the upper end of the vagina. The clitoris was removed and the small vaginal opening was enlarged; the skin of the clitoris brought down and grafted upon the denuded vaginal surface. Several months later, the vagina easily admitted the ordinary bivalve speculum.

Ovarian Grafting.—The following are the results and conclusions of Robt. T. Morris (Am. Jour. of Obst., Dec., 1903), obtained from experimental work on a series of rabbits: (1) When the ovaries are removed from an animal, and then replaced at some point near the original site, or even at distant points, the tendency is for the ovary to continue its function of developing ova and of furnishing its internal secretion. Such transplanted ova may continue to do normal work for an indefinite period. (2) When ovaries are removed from one animal and transplanted into another of the same kind which had its ovaries removed, the tendency is for the grafted ovary to undergo degeneration. The graft will continue to develop ova and furnish internal secretion, for several months in some instances, but at the end of a year the grafts are often found fatty and useless. It is to be assumed that the serum of one animal is destructive to the introduced tissues of another of the same sort. Several points of practical value have been arrived at from this experimental work, and may be applied to the work of to-day. If, for instance, in a case of pyosalpinx, one is obliged to remove the ovaries and oviducts en masse, as often occurs, one can place part of a fairly good ovary in a warm saline solution until the rest of the work is com-

pleted, and then graft this piece of ovary beneath the peritoneum at some point near its original site, before closing the abdomen. This may prevent premature menopause. This refers chiefly to grafting a piece of the woman's own ovary. With a piece of another woman's ovary, the patient may menstruate for several months and have the benefit of internal secretion. It may be possible for her to become pregnant before the graft is degenerative, but this has as yet occurred only in rabbits and very shortly after the grafts were introduced. In one patient who had congenital degeneration of the adnexa and who had never menstruated, menstruation was established by ovarian grafting and continued for nearly four years. The method employed by the author in grafting consists in putting a piece of one ovary into a pan of saline solution at a temperature of about 100 F. until the operation is completed. The segment of ovary is then inserted through a slit in the peritoneum, somewhere near its original site, in such a way that the raw surface of the ovary is subperitoneal, where it can be nourished by the lymph circulation until new capillaries are formed for its support. These are very rapidly formed. A part of the normal periphery of the ovary is allowed to protrude into the peritoneal cavity, so that the ova may escape and find their way into the oviducts in cases in which such a possibility exists. One or two fine catgut sutures serve to hold the graft in place.

Modern Theories of Eclampsia.—The old theories of a renal origin of eclampsia hardly fit into the present knowledge of this disorder, and many views have been advanced which make an intoxication with fetal elements possible. The earliest attempt to explain eclampsia in this direction, took for granted a direct poisoning of the system with placental tissue which readily finds its way into the material circulation. Experiments do not, however, bear out this theory, for the injection of placenta into pregnant animals of the same or different species is never followed by symptoms in any way suggestive of eclampsia. According to another theory every animal destroys its own placental emboli by means of a specific antibody, which is produced only too readily in excess and then acts as a poison. Subdural injections of this syncytiolysin have indeed set up eclamptic convulsions, but subcutaneous and intravenous administration is harmless. The following theory seems more plausible to E. Wormser (Münch. med. Woch., Jan. 5, 1904): Poisonous proteid bodies are produced while placental tissue is dissolved in the material blood; these syncytiotoxins are neutralized under normal conditions, but lead to eclampsia if insufficient antitoxin is produced. If specific serum is allowed to act upon the placenta and the resulting emulsion injected into animals, it is very often possible to induce the typical symptom and, what is more important, the typical lesions of eclampsia. The author has repeated all the experiments which have led to the above theories, and can only record negative results. Even the precipitin reaction which is supposed to manifest itself by precipitation when specific serum is mixed with placental in a test tube, could not be obtained. The portions of syncytium which had been treated for several hours had not lost their macroscopic or microscopic appearance, so that a specific action is at best doubtful.

Treatment of Puerperal Fever.—Questions concerning some of the more interesting of the disputed points relative to the treatment of puerperal infection were submitted to a number of distinguished gynecologists by the Internat. Med. Mag. (Nov., 1903). All agree concerning the advisability of emptying the uterus in the presence of symptoms of puerperal sepsis and of retained placenta. The focus of infection should, if possible, be determined. If vaginal, disinfection by douches and local applications after removing sutures from closed lacerations, are in place. If uterine, a single, non-irritating douche is given in the absence of débris, in its presence, the sharp curette should be used, scraping only when the finger has felt decidual and placental tissue. The cavity is then irrigated with creolin or lysol and lightly packed with iodoform gauze. The douche, but not the curetting, may be repeated. Infection involving the appendages is treated surgically per vaginam, where possible. Constitutional treatment must assist the local. Hysterectomy is indicated for suppurative metritis or widespread infection of the broad ligaments if the general condition is fair and the diagnosis can be made, but this is not the rule. The operation must be performed early, before streptococci have invaded the blood-stream. Rubber gloves are used by most men in making examinations during labor and vaginal douching after labor has been abandoned by almost all. The opinions concerning formalin used intravenously are no longer enthusiastic; it seems to be not better than ordinary salt solution and may even do harm. For phlegmasia alba dolens, rest, elevation of the limb and some antiphlogistic dressing are in place.

THERAPEUTICS.

Sulphanilate of Soda in the Cure of Basedow's Disease.—Kirnberger, in Gaz. Sicil. di Med. (Nov., 26, 1903) advises the use of sulphanilate of soda in Basedow's disease, to counteract the auto-intoxication by the excessive production of iodine by the thyroid body. The following formula may be used:

R Acidi sulphanilici.....gr. 10 (ʒ viii.)
Sodii carbonatis.....gr. 8.05 (ʒ ijss.)
Aquæ destillatæ.....gr. 200.00 (ʒ 3ss.)

Dose, 3 to 5 teaspoonfuls a day.

While little change on the hypertrophied thyroid has taken place, symptoms are much relieved by this treatment.

Radium in Ocular Therapeutics.—In the Gaz. Sicil. di Med. (Nov. 26, 1903), the following conclusions are made: (1) Radium in external application is a very powerful analgesic, especially for neuralgia, rheumatism, iridocyclitis, and the severe pains of inoperable cancer. (2) Application of radium can produce a rapid absorption in the interior of the eye, such as an old hemorrhage of the vitreous body, absorbed in ten days. (3) Certain interesting results are obtained in blepharitis. The results obtained from action of radio-active salt of radium, internally and externally, permit the hope that it will soon be possible to sooth gastric or intestinal pains of nervous origin from ulceration or from cancer.

Permanganate of Potassium in Morphine Poisoning.—The action of permanganate of potassium, the true chemical antidote of morphine, is explained by W. O. Moor (Therap. Monatshft., Nov., 1903) as follows: If a certain amount of permanganate is added to an aqueous solution of albumin, a dark brown, homogenous fluid will result, which will precipitate as soon as morphine is added. On testing this precipitate for morphine, negative results are obtained, since the entire amount of alkaloid is oxidized. The same thing occurs in the system and it seems that the oxidized albumin can pass its oxygen over to the morphine just like the permanganate itself. In all cases of poisoning about half a gram should be given internally, but since the absorptive powers of the gastric mucosa are much reduced, it is absolutely essential to inject 10 to 15 c.cm. of a one half per cent. solution. If introduced into the subcutaneous cellular tissue in different parts of the body, abscess formation will be avoided.

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THE RABBIT LOPE.

Of the manufacture of diseases, like the making of books, there is no end, and though the brunt of the output has hitherto been borne by the wise men of the East, it now seems that the West has scored sufficient points in the quality of their investigations to make good their shortcomings in regard to the mere quantities of their discoveries. We have had the golf shoulder, the baseball arm and the ping-pong ankle, the automobile scowl, and now, as a climax, we are brought face to face with the "rabbit lope."

In regard to its etiology, it seems that the high price of beef, mutton, and what is known as "hog meat," in the vernacular of the localities in which the disease has appeared—which are situated somewhere between the Mississippi River and the setting sun—have led the frugal and shotgun-loving population to indulge too freely in a diet composed entirely—as far as meat is concerned—of jack-rabbits. These have been selling freely and in large quantities at the moderate sum of ten cents per rabbit, and have been considered somewhat in the light of a celestial manna, until the pronounced and decided symptoms, which are now attributed to their use as a food, appeared and were reported by Clarke in the Birmingham *Ledger*.

The first deviation from the normal, which appears to have been noticed and which is now considered pathognomonic of the Southern epidemics, in Raleigh, N. C., and Danville, Va., is a dilatation of the pupil, a dropping of the accommodation, and a peculiar and marked effacement of all expression from the countenance of the victim. A look of chastened idiocy, that seems midway between what was reported in the early nineties, as the "baby stare," and that mental condition, in which the patient insists on the decoration of the hair with straws and claims to belong to a royal family. This is followed by an erection and cropping out of the ears, and, in the male patient, by a twitching of the mustache hairs, while the female seems to be possessed of an increased mobility of the muscles of the lips, which, in the more advanced stages, leads to a perpetual labial quivering. Finally the characteristic movement, from which the disease takes its name appears, and the patient seems unable to avoid making sudden bounds into the air, which, says the report, is particularly marked when the sufferer is making unusual haste, such as "in endeavoring to catch a car or in dancing."

The symptoms subside rapidly on the substitution of other foods and the chief interest seems, from a scientific point, to lie in the fact of what there is in the rabbit that could have produced the disease. A liberal diet, on his part, of belladonna leaves, would account for the ocular symptoms, but the atropine contained in them would doubtless have killed him before he met his death at the hunter's hands. And even were this not so, it would not account for the assimilation by the patient, of a train of physical attributes, which up to this time have been considered characteristic of the *Lepus cuniculus* family.

As to the rabbit himself, he is doubtless a good deal of an unknown quantity, and the few things that in the past have been considered as fixed facts, have now, under the light of the researches of modern savants, become jangled harsh and out of tune. The hare that has for centuries been taken as the type of timidity has now, according to the "rabbit-editor" of the Washington *Post*, blossomed into a most bloodthirsty monster, that kills and worries dogs, and which has taken, by right of conquest, the place of bloodhounds in Wild West shows and in peripatetic Uncle Tom's Cabin troupes.

We hear, alas, no more of the roly-poly rab-

bits with their cunning little habits, but we are taught that they have more valor, even if less discretion, than Mississippi bears, and that they, in place of Bruin, should take the post of honor in future strenuous and executive hunting expeditions.

So of the former "Brer Rabbit" of our childhood days, little is left to us, even his left hind foot has lost its cunning, and the dark of the moon no longer finds the quiet graveyard an ambuscade for his destruction. Nothing of his former glory is left, save, perhaps, his reputation for speed, in which (the jack-rabbit particularly) he has been long supposed to excel all living things. And even here, as a final blow, comes a story from Arizona that seems to rob poor Bunny of even that last record and leaves him distanced and defeated, unhonored, if not unsung.

It seems that a rancher, a typical man of the class, that loving his neighbor as himself, yet loves his neighbor's wife a little more than either, had ridden some thirty miles or more to an adjoining establishment, and had been welcomed, not wisely, perhaps, but too well, by the lonely chatelaine of the Western wilds. Later on, alarmed by the heavy throwing down on the piazza floor below, of the saddle of the unexpectedly returned wanderer, and remembering that in those regions a man's pistol was apt to be as quick as his temper, and as liable to go off, he folded his tent and quietly stole away. Dropping noiselessly from the window he sped away toward the rising dawn, across the grassy plain. Mile after mile of the prairie he traversed with head thrown back, with chest extended, breathing the deep inspirations of those who are trained to sprint. Some four miles on he overtook a jack-rabbit, who was scorching on ahead to a belated home. Scornfully he kicked him from his path, saying as he left him far behind, "Sonny, when you see a man that *can* run and *wants* to run, give him room, it's all he needs."

If this be true, we cannot say. Western papers are more apt to dress their facts in ulsters than in tights, but if it is, it is only one more proof of the supremacy of man over beast, the victory of a guilt-troubled mind over animated matter. There are few churches on the plains, and Sunday Schools do not abound. Men do not always read while they run, particularly when the contest is with jack-rabbits, and this does not seem to be a case where virtue had its own reward. In fact, the episode might answer in the negative the question of the Poet of the Sierras: "Is civilization a failure, or is the Caucasian played out?"

PULMONARY SYPHILIS.

In the midst of the reawakened interest in tuberculosis there is apparently a likelihood that physicians may forget or at least often lose sight of the fact that sometimes pulmonary syphilis simulates tuberculosis of the lung so closely as to make the differential diagnosis practically impossible except by the therapeutic test.

In a recent number of the *Practitioner* (Nov., 1903, p. 685) Dr. J. J. Perkins, one of the physicians to Brompton Hospital for Consumptives, in London, reviews the subject of pulmonary syphilis and calls attention to the fact that in recent years in English and American medical literature some striking cases of pulmonary syphilis, in which there eventually could be no doubt of the true nature of the disease, have been described.

One of the first and most characteristic of these cases was reported in the Medical News for August 30, last year. In this case the patient, a woman of about forty years, suffered from miscarriage and later developed cough and dyspnea with rapid loss of weight. In a few months she came down from 135 pounds to only 95 pounds in weight. There was considerable expectoration and though the sputum was examined at three different times by specialists no tubercle bacilli were found. In spite of this the disease was considered to be tuberculosis and the patient was advised to remove to the mountainous region of Southern New York. This advice was given by a prominent pulmonary specialist. She followed the advice, and her physician in the mountains, a man of large experience with tuberculous patients, confirmed the diagnosis of tuberculosis. She recovered somewhat, but as there were evidences of a cavity it was considered only a question of time until the fatal termination would come, and she was advised to return home. As she was suffering from a cutaneous eruption she consulted a dermatologist who recognized her skin lesions as of syphilitic origin. She was put on antisyphilitic treatment and not only did her cutaneous condition at once improve, but her pulmonary affection also. The cough gradually disappeared and she became practically cured.

In a more recent case the patient was a man who had suffered from a chancre some eight years before he came under observation. There had been cough with thick expectoration, some

fever and occasional hemorrhages extending over a period of two years, with a loss of thirty pounds in weight. Careful treatment directed to the supposed tuberculosis failed entirely of effect, but a liberal diet of milk with potassium iodide and mercury in suitable doses brought immediate amelioration of the pulmonary symptoms and ultimately entire relief. The signs of consolidation passed away leaving only slightly impaired resonance and an occasional râle.

Instances of this character show the necessity for the exercise of great care in the treatment of patients with a positive syphilitic history in whom there are pulmonary symptoms, especially if no tubercle bacilli can be found. This constitutes the only pathognomonic differential sign between the two conditions. Where a syphilitic patient has not been exposed to the contagion of tuberculosis, it is well to try the effects of antisyphilitic treatment even for pulmonary symptoms, since, if the pathological condition is specific it will not be long before decided improvement will be noticed. To leave the patient without syphilitic treatment is almost surely to commit him to the hopeless ravages of the venereal disease.

There is one consideration that must act as a warning, however, with regard to the employment of antisyphilitic remedies, unless there are good grounds for sufficient suspicion of the specific nature of the disease to justify it. It is well known that patients who are already tuberculous when they contract syphilis usually suffer from their specific disease very severely. To give such patients large doses of the iodides and mercury with the idea of relieving the pulmonary symptoms by these remedies is almost surely to invite a deterioration of the general condition, in which both affections will make sad ravages upon the constitution. Specific treatment must be used, of course, but with great care, and as far as possible without encouraging that tendency to dissolution of connective tissue which allows tuberculous processes in the lungs to spread in spite of nature's effort to wall them off by layers of this form of tissue.

The problem is indeed a serious one, but therefore all the more worthy of the earnest consideration of American medical men. Attention to the possibilities of these cases is needed if sad mistakes are to be avoided. There is more than a suspicion that such mistakes have in the past been responsible for a number of deaths in young subjects that might have been avoided.

VACCINATION ONCE MORE.

THERE are many places throughout this country where smallpox is reported. Until the end of winter the disease always increases. There is constant necessity therefore for physicians to insist on the advisability of vaccination and to make people feel how much of protection it affords, with very little inconvenience, to say nothing of suffering or danger, if done under proper circumstances, with due precautions. Notwithstanding the enormous number of vaccinations that have been done in the last few years there are still many who have not been vaccinated. We may say in passing that notwithstanding the very large number vaccinated recently there have been practically no fatalities and none at all in which some other factor besides the vaccination itself was not at work. Some recently recorded unconscious experiments on human beings, the victims being themselves the responsible experimenters, are reported from Chicago, and may very well be used in convincing those who still are unwilling to be vaccinated of how much this measure gives of assurance and protection against smallpox, and how much the absence of it lays the unvaccinated open to dangers that practically cannot be avoided in our large cities.

The bulletin of the Health Department of Chicago has the following paragraph from the medical inspector, who investigated the four cases of smallpox that were sent to the Chicago Isolation Hospital during the last week of last year:

"A man from Oswego, N. Y., visited friends upon his arrival in Chicago while he was in the early stage of smallpox. At the first house he visited there were two young ladies unvaccinated, though they are employed in a large down-town department store. Both are now in the hospital with smallpox, having contracted the disease from their Oswego friend. There was also an unvaccinated man at another house visited by this man and he, too, is now in the hospital with smallpox. The fourth case, an unvaccinated young man, traveled on the same car with the Oswego man and visited in the same neighborhood."

Needless to say this individual suffering from smallpox came in intimate contact during his travels in Chicago with many other persons besides those sent to the hospital. The only reason why there are not many more cases reported is that, fortunately, most of the other persons with whom he was brought in contact were vaccinated,

for there has been a very proper zeal for vaccination in Chicago in recent years. The inspector does very well, however, to add, and his expression is true for many other cities besides Chicago:

"There are still enough unvaccinated people in the city to fill the hospital with smallpox cases if they happen to come in contact with the contagion as these four victims did."

ECHOES AND NEWS.

NEW YORK.

Dr. M. J. Lewi has been appointed Associate Medical Director of the Security Trust and Life Insurance Company of Philadelphia. In addition to performing the medical functions indicated by his title, Dr. Lewi will assist Mr. Luper in the discharge of his multiplying duties as General Manager of the company. The doctor is well and favorably known to the medical world as Secretary of the New York State Board of Medical Examiners, and his life insurance experience includes a five years' service with the American Union Life Insurance Company as its Medical Director.

The Merging of Two Medical Journals.—Messrs. E. B. Treat & Co., the publishers of the *International Medical Magazine* and of *Archives of Pediatrics,* have concluded to merge the two journals. The publishers regret that they must discontinue the *Magazine,* and extend to Dr. Reed their appreciation of his editorial labors.

Promotion of Dr. Gies.—At the last meeting of the trustees of Columbia University Dr. William J. Gies, adjunct professor of physiological chemistry, was assigned to a seat in the medical faculty.

Dr. P. B. Hawk, who was assistant in the department for two years, and who received the degree of Ph.D. from Columbia last June, has accepted the position of demonstrator of physiological chemistry in the University of Pennsylvania. Dr. E. R. Posner has succeeded him.

The Late Drs. Fridenberg and Ruggles.—At a meeting of the Medical Association of the Greater City of New York, held February 8, 1904, the following reports of committees were received and adopted: The Committee appointed to prepare a minute in regard to the death of Dr. Edward Fridenberg, late fellow and associate and one of the Charter Members of this Association, respectfully reports as follows: Dr. Edward Fridenberg, whose death occurred on December 9, 1903, was born on August 16, 1857. He received his primary education in private schools in New York City and abroad. In 1877 he was graduated from the College of Physicians and Surgeons, as an honor man of the class. After serving as interne in the Mount Sinai Hospital and the Ophthalmic and Aural Institute, he began general practice in New York City. His predilections being for eye and ear work, he went to Europe in 1886 and devoted two years to further special study, after which he established himself as a specialist in these branches. He was closely identified with the early growth of the Harlem Medical Association, and was twice President of that Society. For many years he was Ophthalmologist to the German Dispensary, and since 1886 he was attending Ophthalmologist and Aural Surgeon to the German Hospital. He was also Consulting Surgeon to the Hebrew Orphan Asylum, Surgeon to the Harlem Dispensary, and at one time Surgeon to the Randall's Island and Harlem Hospitals. As an active member of many local and national associations he was widely known. To those who knew Dr. Fridenberg closely he will always be remembered as a man of erudition and culture, warmly interested in all socio-economic questions, and always giving full vent to his sympathy for the oppressed individual, class or nation. He was generous and magnanimous in spirit and action, and many a young colleague will never forget the support and encouragement which he received at his hands at a time when it was most needed. (Signed) George W. Jacoby, M.D., Samuel M. Brickner, M.D., *Committee.*

The totally unexpected death, on December 27 last, of the honored and lamented Treasurer, Dr. Augustus D. Ruggles, was a great shock to all the Fellows of this Association. Dr. Ruggles was a member of a well-known family of repute in the Revolutionary annals of the country, and at a later period closely identified with the interests of the city of New York. He was proud of having been a graduate of the Medical Department of the University of Pennsylvania, the oldest and still one of the foremost of the medical colleges of America, and throughout his career he ever regarded his Alma Mater with feelings of veneration and loving devotion. Receiving his degree during the early part of the Civil War, his patriotic ardor prompted him to seek a position in the military service, and in the years that followed he won distinction as a surgeon, more especially in the campaigns of the Army of the Potomac, where he nobly sacrificed his health in the performance of duty. The greater part of his professional life was passed in this city, and for many years he did laborious and conscientious work as a general practitioner. In the medical history of New York, Dr. Ruggles will be best remembered as an earnest worker in professional societies. His faithfulness, his zeal, his energy, and his indefatigable industry in this particular field have rarely been equaled, and never surpassed. He was one of the early members of the New York State and County Medical Associations, in the latter of which he was honored with the Vice-Presidency, and both these bodies were largely indebted to him for their success. In later years he was one of the organizers and incorporators of the Medical Association of the Greater City of New York, and also its Treasurer from the beginning; and there are few of us who do not realize that it was in a very great measure due to his untiring efforts that this Society has been placed upon a lasting foundation and has started upon a career which promises a brilliant future. He had not a few devoted friends, and his genial disposition and pleasing address made him a favorite in a very wide circle. It is probable that no one has yet lived who had a more extensive personal acquaintance than he among the medical profession of New York City and its vicinity. In taking note of the death of Dr. Ruggles this Association desires to record a sense of the profound sorrow occasioned by his irreparable loss, and to give expression to its sincere appreciation of the faithfulness and earnestness of his self-sacrificing labors in its behalf. (Signed) John H. Hinton, M.D., P. Brynberg Porter, M.D., Reynold Webb Wilcox, M.D., *Committee.*

PHILADELPHIA.

Phipps Institute Lecture.—The next lecture in the international course on Tuberculosis under the auspices of the Henry Phipps Institute, will be given

by Dr. Herman M. Biggs, Chief of the Department of Health in New York, on Monday evening, February 15, the subject being "The Administrative Control of Tuberculosis." The profession in general is cordially invited to attend this lecture.

Dinner to Dr. Chandler.—Many of the prominent physicians of this city, Delaware and Maryland gave a dinner at the Walton, February 4, in honor of Dr. Joseph H. Chandler, of Centreville, Del., president of the Joseph H. Chandler Medical Club of that State. Toasts were responded to by Drs. Hearn, Chandler, Montgomery and others, Dr. H. A. Hare acting as toastmaster.

Medical Standard Too Low.—Dr. Henry Beates, Jr., President of the State Board of Medical Examiners, is quoted as saying that the reason for so many men failing to pass the examination for inspectorships under the Bureau of Health, as well as those before the State Board, is that the standard of admission to the medical colleges is too low. Before the State Board at its last meeting forty-two per cent. of the candidates failed to attain a passing mark. Had Dr. Beates' own vote sufficed for that purpose, eighty per cent. would have been rejected.

Careless Physicians to Be Punished.—The Board of Health is making examples of those physicians who send victims of contagious diseases to the City Hall or to the Municipal Hospital in carriages or even in street cars. A negro physician has been fined $10 and costs for sending a case of smallpox to the department at the City Hall. Three other physicians have been summoned to explain their failure to report cases of contagious disease.

Vaccination at Philadelphia Hospital.—Visitors to the Philadelphia Hospital are now required to show satisfactory vaccination scars or undergo vaccination before they are permitted to enter the wards of that institution. Inmates of the place are also required to be vaccinated before visiting relatives in the city. This rule is in pursuance of the endeavor to prevent smallpox breaking out among the 5,000 inmates of the institution.

Lectures to School Teachers.—Under the joint auspices of the Board of Education and the Department of Health, a course of lectures on "School Hygiene" to the teachers of the public schools will be opened on February 23. Dr. S. Weir Mitchell will open the course with remarks on the nervous diseases of children. The course includes seven lectures, one of which will be held each week. The lecturers to follow Dr. Mitchell are Drs. H. A. Hare, G. E. DeSchweinitz, H. A. Wilson, Jay F. Schamberg, and D. D. Smith. All have volunteered their services. The course is in the nature of a preliminary to the establishment of medical inspection of schools.

Chronic Cyanotic Polycythemia.—A case of this somewhat rare clinical entity was reported at the Section on Medicine of the College of Physicians, February 8, by Dr. W. E. Robertson, the patient being exhibited. The subject is a Hebrew, fifty years of age. He is one of fourteen children, eleven of whom are dead from causes unknown. The patient had never before been ill, not even having the diseases of childhood. He is a moderate drinker and has not followed any laborious occupation. Two years ago he began to suffer from indigestion and constipation, the latter at times amounting to fecal impaction. Pain was then felt in the left hypochondrium. When first seen three months ago the spleen extended three or four fingers' breadth below the costal margin. Since then it has increased markedly in size, now reaching almost to Poupart's ligament. The patient has no fever and no vomiting. The chief complaints are headache and pain on the left side of the body. Cyanosis varies from time to time. It is most marked on the left side of the body. The blood count shows from 9,680,000 to 9,950,000 erythrocytes, 15,000 to 23,000 leucocytes and hemoglobin of 114 to 116 per cent. The size and shape of the red cells seem to be normal. Blood obtained from puncture of the spleen contained no nucleated red cells. The question of splenectomy in this case is being very seriously considered.

To Extend Crusade Against Tuberculosis.—Preliminary announcement of a far-reaching crusade against tuberculosis has been made by Director Martin who is acting in conjunction with Mayor Weaver. Registration of cases of the disease is to be the first step in the plan as outlined. Added to this will be the removal of infected persons to a camp to be established in a mountainous region of the state. The cooperation of the state authorities is to be enlisted as the camp would at first have to be sustained by grants, though it is believed that it could be made self-supporting later on. The scheme as outlined will take considerable time to put into working shape, but it will be pushed as fast as the necessary aid can be secured.

CHICAGO.

Report of the Alexian Brothers' Hospital.—According to the report of this institution, during 1903 the hospital cared for 3,062 patients; 1,932 were discharged cured, 488 discharged improved, and 91 discharged unimproved. The deaths of the year numbered 333. Of these, 126 were in a dying condition when brought to the institution.

No More Expectoration on Sidewalks.—According to the line of campaign recently adopted by the Progressive Health Club, composed entirely of women, there will be no more expectoration on sidewalks, in public places, or vehicles. The members of this club urge the wide publicity of the anti-expectoration ordinance, aided by the press and printed cards, the latter to be brief and forcible. Prompt arrest of flagrant offenders. Alderman Goldzier, who secured the passage of the anti-expectoration ordinance three years ago, which, by the way, has never been enforced, has drafted a formal memorial to Mayor Harrison and the City Council, as follows: "(1) The police and health departments shall be instructed to cause the arrest of persons who flagrantly and offensively violate the ordinance by expectorating on sidewalks, etc. We are fully aware that it is not possible to arrest every offender, but an occasional arrest would call the attention of the public to the ordinance and the nuisance. (2) The present printed card in use by the health department is prolix and weak. (3) These notices to be given proprietors of halls, etc., and posted on patrol boxes and other practical and conspicuous places. An ordinance to provide for their posting in public vehicles." The Committee of the Progressive Health Club was instructed to again call on the transportation companies in the interest of cleaner cars and to secure cooperation from the Board of Education in bringing to the attention of school children the evil of the spitting habit, that they might take the lesson to their homes.

Hospitals Must Comply with Building Ordinance.—The Superintendents of 13 hospitals have been notified by the Building Commissioner not to receive any new patients until certain specified

changes, looking to the safety of patients in case of fire, have been made.

Factors That Influence Pneumonia.—Dr. Wm. K. Jaques read a paper on this subject before the Chicago Medical Society. Among other things, he said that pneumonia is a disease of impaired vitality. Loss of immunity is usually the last factor in causing the disease. When any portion of the lung tissue loses its resistance, one or more of several organisms may cause pneumonia if they are present and are capable of taking advantage of the loss of immunity. The triumphs of medical science in other diseases tend to lengthen life and increase that class of individuals who die of old age. In every community there are people who have passed the meridian of life in seeming fair health, but crippled kidneys, impaired hearts, cirrhotic livers or sclerotic arteries prove they have no resistance when attacked by pneumonia. Because of these complications, there can be no definite and unvarying course in the treatment of the disease. Each case presents its own problems. But there are several cardinal points upon which every physician should have a well matured line of action. These are control of temperature, adequate supply of oxygen, proper administration of nourishment, and attention to elimination. If the microscope reveals the presence of the *Diplococcus lanceolatus* in sufficient numbers to indicate that it is the chief bacterial factor in the inflammation, the prompt administration of pneumococcus antitoxin is a rational procedure. This should be done with the appreciation of the minor part the pneumotoxin may play in the disease. The proper administration of remedies should not be discouraged, but they should be given with a clear understanding that life depends upon the resisting metabolism of the cells, and that medicines are given to increase this. In considering prophylaxis, the most important point to remember is that pneumonia is an infectious disease, and that the infection should be destroyed as near its source (the patient) as possible. The fact that many pneumococcic cases occur where there is a tuberculous lesion makes the discharges from such patients doubly dangerous. Heat is the safest method of disinfection. Boil or burn as many of the infected articles as possible. Furniture, which cannot be treated in this way, should be thoroughly cleansed with soap and water, and then disinfected with formaldehyde. It should be remembered, in the use of this gas, that dried pneumonia sputa, and the horny resisting tubercle bacilli can be but little affected by it in the way it is usually employed for disinfection. Cleanliness is the first and best half of disinfection. Burn, boil and scrub; lastly, disinfect.

Treatment of Burns and Scalds.—Dr. Charles MacLellan read a paper on this subject at the Chicago Medical Society. The clothing should be removed by cutting with sharp scissors, never by pulling or tearing. The washing should be done, if necessary, by effusion of rain or distilled warm water, in which a large quantity of bicarbonate of soda has been dissolved. The blisters should be opened and the evacuated contents absorbed by soft cotton or sponge. As a blistered cuticle never reunites with the cutis, and is not pervious to serum, it should be removed at once and not left to rest on the inflamed cutis after the fluid is discharged, for it must exercise a deleterious influence on the abraded surface, even to endangering the life of the sufferer. The means of supplying fresh cuticle is vested in the cutis, and is begun the moment the injury has been received. The pain in extensive burns is less than is generally supposed, not at all so acute as in injuries of equal extent from other causes and frequently gives little warning to the surgeon in cases where the life is in danger. The surgeon should be careful of albuminuria, pneumonia, meningitis, or intestinal ulcer. The usual local remedies are equal parts of linseed oil and lime water, olive oil, lard oil, dry cotton, glycerin, carbolic acid in solution, starch, gum tragacanth, collodion, etc. These, in the opinion of the essayist, are too adhesive. All detached dead matter should be removed with the dressings once daily, and the old injunction, change the dressing as seldom as possible, may be disregarded. He has in his own practice dismissed all dressings except castor oil in the treatment of scalds and burns of whatever class. In the use of castor oil the author has been pleased with the results, as compared with the former use of the time-honored carron oil, powders or varnishes. It requires a high temperature to keep the parts free from pain, and cotton-wool should thickly cover all dressings in the early treatment. The manner of applying the dressings of castor oil is first to have the parts washed as well as may be. The oil is then poured over the injured surface freely and distributed evenly, with a fine varnish brush, say of an inch and one-half width. Pieces of plain or medicated gauze cut into the desired shape and having previously been placed in a bath of castor oil, are applied over the wound and brushed to smoothness. More oil may then be brushed in to saturate thoroughly, and the gauze then covered with cotton-wool chiefly. The nurse should be instructed to remove the wool at intervals sufficiently close to prevent drying or adhesion, and, having the oil in a vessel at hand, dip the brush into it and paint over the gauze to full saturation, replacing the wool. The removal of the wool and the brushing will require to be done much more frequently in the early days of the treatment, when the heat of the inflamed parts is so great, than when the case has advanced.

Treatment of Trigeminal Neuralgia by Injections of Osmic Acid.—Dr. John B. Murphy reports the case of a man of seventy-six years, in poor physical condition, who had suffered from neuralgic pains on the right side of the face for thirteen years, but they were not very severe or constant until four years ago. On examination slight tenderness was found over the supra- and infraorbital divisions at their exits. No areas of hyperesthesia or anesthesia, and no evidences of tumor or inflammation along the course of either nerve. The proper treatment to employ was puzzling, on account of the patient's age and poor physical condition. It was finally determined to resort to the method used by Bennett, with most gratifying results, in ten cases, namely, intraneural injection of osmic acid solution. The nerve is exposed through a small incision about one-half inch in length, over the supraorbital notch, the incision being parallel with the eyebrow; the incision should be through the mucosa of the mouth or the infraorbital and mental branches. The nerve is elevated by a blunt hook and from five to ten minims of a fresh 1.5 per cent. solution of osmic acid injected directly into its substance and into the foramen. An ordinary hypodermic syringe and fine needle are used, and the solution injected in several different places to be sure every fiber was reached. A small amount was then injected between

the nerve and its sheath, in its bony canal. During the injection a small pledget of cotton is held around the needle, to absorb the excess of solution. Wherever this comes in contact with the blood or soft parts, immediate blackening results. The action of the acid on the nerve endings in the wound is probably beneficial, so a small amount should be allowed to come in contact with them. The incision is closed with horsehair and catgut, and primary union is not interfered with. The author's case was operated on under ether, though local anesthesia is better for the majority. The operation lasted only some twenty minutes, and when last heard from, Dec. 3, 1903, there had been no return of pain. The modus operandi of the procedure is not definitely understood at present, according to Murphy. The acid acts in one of two ways, or possibly in both; first, by producing a degeneration of the nerve on the proximal side toward the ganglion; or, second, by causing local destruction of the nerve and its endings. The former seems to the author to be more likely. He has now used it on seven cases of trifacial neuralgia, and all have been completely relieved. There is a total loss of sensation in the face over the areas supplied by them, and that anesthesia has existed up to the present time. The masseter and temporal muscles, however, were not paralyzed in any of the cases as far as he has been able to determine, indicating that the degeneration had not ascended on the nerve branches. He used it in one case of neuralgia of the arm, following forearm amputation. Patient's pain was symptomatically located in the palm and wrist of the amputated hand. The injection was made in the three divisions of the brachial plexus, solution 2 per cent., into the trunks for a full inch of the nerve. There was a partial paralysis of the muscles of the arm. The sensation was very much altered at once, and while the patient had suffered from the pain for about ten years, and had had a number of operations of nerve resection, all without relief, the osmic acid produced a change in the location and character of the pain, but it is not sufficiently relieved to call it at all satisfactory, and ten weeks now have elapsed since the operation. In the animal experiments, with injection into motor nerves, permanent paralysis followed. It should, therefore, not be used in neuralgias of motor nerves.

CANADA.

Personal.—Dr. J. W. Daniel, a prominent and popular physician of St. John, N. B., has been chosen to contest that constituency in the pending by-election for the Dominion House of Commons. He is standing in the Liberal-Conservative interest.

Dr. A. J. Richer, secretary of the Montreal League for the Prevention and Cure of Tuberculosis, has returned to that city after an extensive trip to the United States, where he has been obtaining information as to the work of such organizations; studying methods in use in fighting tuberculosis; plans for sanatoria and details of the work. He also attended the Tuberculosis Exposition at Baltimore on January 25, and the meeting of the Phthisis-Therapeutists of North America, on January 28. At the next regular meeting of the Montreal League, Dr. Richer will give an account of his observations.

McGill Medical Society Celebrates Anniversary.—The Medical Society of McGill University celebrated its twenty-fifth anniversary on the evening of February third, with the Hon. President, Dr. W. F. Hamilton, presiding. This Society was formed twenty-five years ago with Dr. Wm. Osler as its first president and Dr. F. J. Shepherd, as first vice-president. A feature of the evening's celebration was a debate on "Resolved, That Athletics Interfere with the Best Physical and Mental Development of the Students." The decision was awarded by the judges, Drs. C. F. Martin, R. Tait McKenzie and D. D. McTaggart, in favor of the negative, as in their opinion athletics did not signify sports as they are carried on in most modern universities.

Winnipeg Medical Association.—At the annual meeting of the Winnipeg Medical Association, Dr. McArthur was elected president; Dr. Popham, first vice-president; Dr. Gordon Bell, second vice-president; Dr. Davidson, secretary, and Drs. McKenty, Beatty, Rogers and Crawford, councillors.

Ontario Physicians and the New Assessment Act.—The Ontario Government proposes to make a radical change at the present session of the legislature with regard to assessments, and as the proposed measure discriminates against the physicians of the Province they are up in arms against the measure. At present physicians in the cities, towns and incorporated villages pay taxes on excess of income over $700; and it is proposed to do away with income tax entirely and substitute therefor a "business" tax. Under this new law a physician owning his own property will have to pay his regular assessment tax on property and in addition a "business" tax on half the assessed value of said property. The new business tax will bear especially hard on the young practitioner and the old practitioner in the cities, as in the former instance, as it takes a young man some years to accumulate an income, he is entirely free under the present law from taxation until such times as he is making more than $700 per annum, and in the case of the old practitioner, who has partially retired from active practice, with very little of this world's goods, but will have to pay, not in proportion to his income but on 50 per cent. of the assessed value of the house he owns or rents.

To Train Ontario Teachers in Hygiene.—A medical conference which may have far-reaching results was held in Toronto last week at the instance of the Minister of Education, as the first step in the investigation of school hygiene by the Ontario Board of Health. One result of the conference will likely be the formation of a medical section to take part in the annual meeting of the Ontario Teacher's Convention. Dr. P. H. Bryce, formerly secretary of the Ontario Board of Health, stated that as a result of medical science in Ontario, the deaths in this province were but one-third what they were twenty years ago. Among others who contributed to the meeting were Dr. Charles Sheard, Medical Health Officer of Toronto, and Dr. C. A. Hodgetts, Secretary of the Board of Health, the latter of whom advocated compulsory drill for school boys as the basis for men trained for the militia.

GENERAL.

Ingersoll Lecture.—This lecture will be delivered this year by Dr. William Osler, of the Johns Hopkins Medical School, of Baltimore, Md. The subject will be "Science and Immortality." Further announcements later.

Examinations for Army Medical Service.—The examination of applicants for appointment as Assistant Surgeon in the United States Army will be resumed in Washington immediately after the close of the present session of the Army Medical School; it will embrace the full examination (as heretofore), at the

conclusion of which those found qualified will be commissioned. Full information as to the requisite qualifications for appearance for examination, method of application, nature and scope of examination, etc., may be obtained upon application to the Surgeon General, U. S. Army, Washington, D. C. The examining board will probably reassemble about the middle of April next, and those desiring to present themselves before the board should make application at once. Applicants are restricted in age to thirty years, and one year's hospital experience or its equivalent in private practice is required.

Congress of Polish Physicians.—The Tenth Quadrennial Congress of the Polish Physicians and Scientists will be held this year in Lemberg, Austria, July 20-24. Prof. E. Machek is the chairman of the committee of arrangements, and Prof. W. Sieradzki, secretary. Dr. Francis E. Fronczak, of Buffalo, N. Y., is the representative of the committee for the United States.

Dr. Senn Going to the War.—It is reported that Dr. Nicholas Senn, who was ranking Surgeon-General during the Spanish-American War, wants Chicago to give him $100,000 at once, in order that he may equip a party of twenty-five physicians, nurses and orderlies to go to Japan for service at the front.

Flies and Typhoid.—Prof. Herbert E. Smith, dean of the Yale medical school and also State Chemist, and Edward Mahl, president of the Hartford Board of Health, in the official report of their investigation of the origin of the recent epidemic of typhoid fever at the New Haven county jail, said that flies carried the typhoid bacilli from dwelling houses on one of the streets that skirt the jail premises and where there were several cases of typhoid at the time. They say the germ-bearing flies entered the open jail windows and deposited the bacilli on the food in the kitchen. Seven of the twenty-one jail patients who had typhoid died.

Mortality from Anesthesia in England.—The annual returns of the British registrar general show a steady increase of mortality from anesthesia since 1863. In 1900 there were 140 deaths registered as due to anesthetics. According to Dr. A. D. Waller, (F.R.S.), of the University of London, this is an entirely unnecessary price to pay for the boon of anesthesia, as the chief reason of its payment is ignorance of the most elementary principles of the subject. Dr. Waller believes that deaths from chloroform (the popular anesthetic in England), are due simply to a too great concentration of the inhaled vapor. Using a pump invented by Dr. Dubois, of Lyons, in anesthetizing animals, Dr. Waller has never lost one from chloroform among the thousands operated on. The pump has already been tried to a limited extent on human beings, with entirely satisfactory results. The best percentage of chloroform for anesthesia is between one and two per cent.; there is practically no danger from such a mixture. This can be accurately maintained by means of the Dubois pump. In many ways chloroform is preferable to ether as an anesthetic, and if it could be rendered as safe as the latter, might largely replace it in this country.

Radium Exhibit at St. Louis Exposition.—Dr. George F. Kunz, special agent of the United States Geological Survey, has been appointed commissioner of the radium exhibit at the St. Louis Exposition, and has been authorized to prepare and procure material therefor, comprising radioactive substances of all kinds, and also exhibits to illustrate the action of radium compounds, ultraviolet light, and Roentgen rays upon mineral and chemical substances. This exhibit is to be made by the United States Geological Survey, in the United States Building. There will be a second exhibit of radium and radioactive substances in the Mines Building.

Typhoid Pre-eminence.—The people of Pittsburg, says the New York *Times*, are not at all proud of the fact that for the moment their city takes first rank among American municipalities for its high typhoid death rate and has held it for many years. The Pittsburg *Dispatch* says: "A comparative list of typhoid mortality of all cities in the United States of over 30,000 population for the years 1888-1891, inclusive, shows Pittsburg to be at the head of the list for that period, and Allegheny standing fourth. The only other two cities showing as great a mortality as that of Pittsburg in this table were Lowell and Lawrence, which have since applied the remedy. The census of 1880 showed the typhoid fever rate per 10,000 population to be greater in Pittsburg than in any other city in the United States, Nashville being then a close second. These statistics leave no doubt of the fact that Pittsburg has for a quarter of a century suffered more from typhoid than any other city in the country. We are not aware of any statistics of districts outside of cities. But as to the undesirable pre-eminence of our city in that respect the figures remove all question. The latest data obtainable as to the typhoid situation in Pittsburg and Allegheny showed 3,299 cases and 483 deaths in 1903. This for a population of less than 322,000 should lead to something more than a newspaper discussion of the possible or probable reasons for what would seem to be a continuing epidemic. Why is it that public opinion does not focus in demand sufficiently insistent to command the attention and compel the obedience of the politicians for an expert investigation of the whole subject? The cost to the people of Pittsburg involved in the toleration of such an amount of preventable disease is many times greater than that of providing remedies which would make typhoid exceptional. Doubtless the trouble begins with the city's water supply, but it does not end there. No doubt a large proportion of the cases are due to secondary infection, which indicates a lax administration of the city's health ordinances. That the professional politicians and office holders do not initiate the reforms needed is not surprising; that the people of Pittsburg do not demand them may properly be so considered."

OBITUARY.

Dr. John R. Hinkson died at his home, 544 Greenpoint avenue, Blissville, L. I., Feb. 5. He had been sick only one day. Dr. Hinkson was forty-eight years old. He was a graduate of the Dublin (Ireland) Medical College. At one time he was a professor of surgery in the Bellevue Medical College. Fifteen years ago he settled in the Blissville section of Long Island City, and had since practised there.

Dr. Joseph G. Rooney, of West Hoboken, died Feb. 4, in St. Mary's Hospital, Hoboken. His death was the result of exposure on the night of Jan. 18, when he attended a number of firemen who had been injured at a fire on Jersey City Heights. His hands were badly frostbitten, and subsequently gangrene set in, the progress of which it was found impossible to stop.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, January 23.

THE HEALTH OF LONDON—THE ETIOLOGY OF CANCER—CANCER CURES—PROPOSED STERILIZATION OF DEGENERATES.

MR. SHIRLEY MURPHY, the Medical Officer of Health for the County of London, in his report which has just been issued, states that the death rate in London from all causes per 1,000 living persons was in 1902 only 17.2. The total population estimated to the middle of that year was 4,579,110. This is the lowest rate ever recorded of our metropolis with the exception of that for 1901, which was 17.1. The health of London, judged by its general death rate, has steadily improved since the present system of registration has been in force and the figures for the last ten or fifteen years compare favorably with those for any equal series of years preceding them. Rightly to estimate the value of these figures, however, it has to be remembered that there are several contributory causes of the low death rate. One is that many invalids leave the *fumum strepitumque* of the capital to die in peace in quiet places in the country or by the sea. Another factor to be taken into account is that the population of London is constantly being replenished and its average of health raised by the influx of sturdy immigrants from the rural districts. Statistics have been collected which seem to show that a family of pure-bred Londoners tends to die out in the third generation. Without the constant addition of fresh healthy blood from the country, therefore, our population would be in danger of dying out. It is a sign of ominous import, however, that the birth rate has decreased coincidently with the death rate. The number of births registered in the area over which the London County Council holds administrative sway in 1902 was 132,810, giving a rate of 28.5 per 1,000. This is the lowest birth rate recorded in London since the institution of civil registration. On the other hand there was a slight increase in the number of marriages in 1902, the number recorded being 40,817, giving an annual rate per 1,000 of 17.8, as against one of 17.6 in 1901.

During 1902 cancer claimed no fewer than 4,630 victims in London alone. It is not surprising, therefore, that the causation of that growing scourge is decidedly the pathological question of the day here. The results of a careful study of the subject from the purely biological point of view by Professor Farmer, a leading botanist and two zoologists, Messrs. Moore and Walker of the Royal College of Science, were summarized in a previous letter. These results have since been confirmed in the main by Dr. E. F. Bashford, Director of the Laboratories of the Cancer Research Fund, and his assistant, Dr. J. A. Murray. In a paper presented by them to the Royal Society on January 21, they say that a comparative study of the processes of cell-division indifferent forms of carcinoma and sarcoma occurring in animals yield complete confirmation of the discovery by Farmer, Moore and Walker, of the special and very characteristic forms of cell metamorphosis and division which, previous to their observations on cancer in man, had been accepted as peculiar to the normal reproductive tissues. Drs. Bashford and Murray point out that the transmission of malignant new growths has never been effected from man to animals, or from one animal to another of a different species; but, by the successful experimental transmission of cancer from one animal to another of the same species, it has been found that the tumors which develop are direct genealogical descendants of the cells produced. These conclusions confirm those already obtained by Jensen, of Copenhagen. Artificial transplantation differs from the secondary growths of cancer only in that the latter occur naturally from one site to another in the same individual, while the former is artificially effected from one individual to another. The process is in no sense an infection, for the tissues of the new host are merely the soil in which the transplanted tissue grows, and do not themselves become cancerous. The phenomena of cell division, indicating a similarity to the normal reproductive tissues, may help to explain the nature of this great power of multiplication, but leave the problem of the origin of cancer practically untouched. They give, however, important indications of the character of the processes on the elucidation of which the solution of the question depends. The wide zoological distribution of malignant new growths, which have been found in all classes of vertebrates down to the lowest, indicate that the cause of cancer is to be sought in a disturbance of those phenomena of reproduction and cell life which are common to the forms in which it occurs. If the observations of Farmer, Moore and Walker are finally proved to be correct, it will be established that a cancerous growth in man is precisely similar to the abnormal production of prothallial tissue on the fronds of a fern—in other words, that the onset of the disease in the human being is indirectly due to some of those as yet imperfectly understood causes which like the tying down of the frond of a fern, induce the normal tissue of the body to enter on the reproductive or "reduced" phase of its life cycle. It is pointed out that the new discovery, if established, may open up a large field of possibilities in regard to cure. It is known that the processes involved are in some cases, as in ferns, already under partial, if not complete control; and from this it may be inferred that the cure or arrest of the process in the human subject is equally possible. At the present stage of the inquiry it would be too much to say that the Sphinx-riddle of cancer has found its Œdipus. But it is permissible to say that the work of Farmer, Moore and Walker is considered by some highly competent judges here to be the greatest step yet made toward a solution.

In the meantime the search for a "cure" is being actively pursued in other directions, but it must sadly be confessed that so far the paths followed by different explorers have led nowhere. A couple of months ago we were all somewhat excited by reports of a wonderful discovery made in Germany. It was said that one Schmidt, of Cologne, had not only run to earth but had succeeded in cultivating the elusive parasite of cancer. Sterile cultures of the organism injected into cancerous tumors were said to produce a local selective reaction. After the reaction had passed off, and the process had been repeated several times, it was alleged that the growth, metastatic deposits and infected glands underwent fibrous degeneration. An English practitioner brought the "discovery" to the knowledge of the profession in this country, but the details of the method of preparing the therapeutic serum were kept secret. Schmidt who promised to reveal everything to the Berlin Medical Society has, as far as I am aware, not yet done so. His serum has been tried here under his own supervision on several cases in the Middlesex Hospital without any appreciable result. At a recent meeting of one of the Divisions of the British Medical Association Mr. D'Arcy Power, of St. Bartholomew's Hospital presented a record of three cases—one of cancer of the breast, one of epithelioma of the tongue, one of malignant growth in the neck—treated by Schmidt's

method. In all the cases an operation had been performed not long before. Mr. Power's conclusions are (1) that there is no doubt that a reaction takes place after the injection of Schmidt's serum. The temperature rises and with it the pulse, but the respirations as a rule are not affected. It cannot, however, be said with accuracy that the reaction is specific, as is shown by the fact that in the case which showed the most typical reaction, subsequent examination of the tissues failed to detect any malignant disease. (2) The local effect upon the tumor was shown in each case, for the breast in the first case and the malignant masses in the other two cases became inflamed and reddened as the result of the injection. Here, again, Mr. Power could not satisfy himself that the serum acted by selection upon malignant tissues only. It seemed to him to intensify any pre-existing inflammation. (3) The treatment was certainly painful apart from the succession of hypodermic injections. Lastly, malignant disease progressed while the injections were being given. Mr. Power fears, therefore, that the method at present is of no service either from a prophylactic, diagnostic, or curative standpoint.

The name of Dr. Robert Reid Rentoul, of Liverpool, is well-known to the readers of the medical journals in this country as for many years he was one of the foremost in the small but active body who regard themselves as reformers, but who are regarded by most people as bores. His persistence as an agitator was rewarded a few years ago by his election as one of the Direct Representatives of the English profession on the General Medical Council. His career there was brief and inglorious. One day he suddenly resigned, possibly because he felt himself to be a failure as a medical legislator. Since that episode, he has been comparatively quiet. Quite recently he has come before the world with a booklet bearing the sensational title "Proposed Sterilization of Certain Mental and Physical Degenerates." Deeply impressed by "the appalling state of physical and moral degeneracy now existing in this country" he has set himself to find a remedy. He points out that in the ten years 1893-1902, no fewer than 73,773 lunatics in England and Wales were discharged as "recovered." In the eight years 1895-1903, 8,933 lunatics were discharged as "recovered" from the asylums under the London County Council; of this latter number 2,285 were readmitted, 1,119 of them within one year of their discharge. "Is it right," asks Dr. Rentoul, "is it just to others that so large a proportion of 'recovered' persons should be permitted to return to ordinary life, there to beget a tainted offspring?" "We might," he says, "and with less danger, send out among the public persons cured of smallpox or plague without having first disinfected their clothes, as release 73,773 persons from asylums as 'recovered' to either resume or enter into conjugal relations." The remedy suggested is artificial sterilization. The treatment is to be applied not only to 'recovered' lunatics, but comprehensively to sufferers from leprosy, cancer, epilepsy, idiots, imbeciles, cretins, weak-minded persons under restraint, persons with advanced organic disease of the heart, lungs, kidneys, "or, in fact, any specific disease liable to be passed from parent to offspring." Prostitutes and sexual degenerates guilty of "crimes against good morals" are to be similarly dealt with; "a surgical, not the present legal, punishment is required." Tramps, confirmed criminals, the victims of venereal disease, and even "backward," "dull" and "weak-minded" children are for the public good, to be made incapable of propagating their species. The operation proposed for this purpose is ligature of excision of about two inches of the vasa deferentia in the male, or of the Fallopian tubes in the female. It must be done of course under the sanction of a properly constituted authority. "Parliament should empower each County Council to yearly appoint a board composed of one person qualified in medicine, one in law, one by the Commissioners in Lunacy, one from the County Council, and one by the Commissioners of Prisons." Not more than two surgeons in each county should be licensed by the Home Office as operators, and an annual report of all operations should be presented to Parliament. Dr. Rentoul has, as will be seen, got his plan thoroughly organized—on paper. Though an Irishman, he is absolutely destitute of the sense of humor and makes his proposal with the most solemn gravity. He sees no difficulties in the way of his reform, and disdains to take into account either popular or professional sentiment. In this country, owing partly to its own deficiencies and partly to the anti-scientific bias so prevalent even among educated people, the social status of the medical profession is already somewhat doubtful. What would its position be if, among other unpleasant associations, the term "doctor" should come to connote a gelder and spayer of human beings?

SOCIETY PROCEEDINGS.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regular Monthly Meeting, held November 28, 1903.

The President, Frank Daniels, M.D., in the Chair.

Purinemia.—This was the subject of the paper of the evening, and was read by Dr. Reynold Webb Wilcox.

Uric Acid in Gout.—Dr. Wilcox said that with regard to the sodium biurate always found in the tophi of gouty cases, there has always been some doubt as to whether it was the cause or the result of the gouty condition, that is, as to whether the deposit of the urate indicated an excess of urates in the blood, or was only due to some other condition causing a disturbance of metabolism with local manufacture of uratic material. Great as has been the doubt as to the cause of gout, however, there has been still more with regard to treatment. Accepting the suggestions as to the relationship of uric acid to the disease, it has long been considered that the principal element in the treatment must be the prevention of consumption of materials likely to produce xanthin derivatives. Very serious doubts have been thrown on this doctrine in recent times, however.

Goutiness.—This is a condition that develops in the gouty individual and is the result of the unstable metabolism which exists in the system and which is likely to lead to interference with the function of any large organ. The metabolic disturbances are extremely important. They constitute the reason for Woods Hutchinson's recent definition of gout "a disturbance of health, with excess of uric acid in the urine." There are cases in which with undoubted symptoms of goutiness there is no abnormal amount of uric acid in the urine. On the other hand, the definition is too wide and includes certain cases that are recognized as bearing no relation at all to gout, for instance the uric acid infarcts, which occur in the kidney of the new-born child, are surely not to be considered either as an index or as a result of the gouty diathesis. It was shown nearly twenty years ago that uric acid in itself is not toxic and that it may be injected with impunity into animals without producing serious results. On the other hand the investigations of urinary analysts, have led us to the realization that a uric acid sediment is not pathological. The solution of uric acid depends on the presence of normal sodium phosphate in the urine and the absence of this salt, or its diminution very

readily leads to the deposit of uric acid as a urinary sediment. It is recognized, however, that there is some relation between the manifestations of gout and especially their alleviation and the presence of an excess of uric acid in the urine.

Lead as a Cause of Gout.—It is very well understood now and generally admitted that the ingestion of lead is a prominent cause of gout. A very large number of those who suffer from gout are workers in lead in one way or another and very few of those who suffer from chronic intoxication by lead fail to have symptoms of gout. It would seem on the new theory that the presence of lead interferes with the metabolism by which the formation of an excess of purin bodies is normally avoided and also their oxidation product, uric acid, is also avoided. Alcohol is a prominent cause of gout, but it is not definitely assured whether it is alcohol itself, or rather the esters and ethers which occur so commonly in the rich wines used by the wealthy classes and also in the malt liquors of the poor.

Diet in Gout.—It has been presumed that nitrogenous products are a prominent element in the causation of gout. Nitrogen, however, must be given. It can not be taken up from the atmosphere. It may be obtained then either from vegetable albumen, or from animal albumin. Vegetable albumin, however, is to many patients a little harder to digest than that which occurs in various flesh meats. Meats, therefore, must be used in moderation. The same thing must be true with regard to vegetable albuminous products. In a word the nitrogenous elements of the diet must be limited in quantity rather than quality. Two ounces of whisky may also be allowed, especially in patients who take considerable outdoor exercise. In those of sedentary habits and who are already burning up, less of the heat-producing material that is ingested than is normally proportionate to the amount of calories needed, these substances must be a source of additional labor to the liver or the muscles and may therefore be a new cause of metabolic disturbances.

The Purins.—In discussing Dr. Wilcox's paper Dr. Ogden said that very little is known about the purins. While they are familiar enough in the physiological chemistry of former years under other names, it is only for a year or two that they have been known as purins. Fischer first gave them this name, before this they were known as the xanthin and allied bodies. They are present only in small amounts even when the twenty-four hours' urine is examined. The xanthin bodies are usually present to the extent of from two to three up to seven milligrams; under certain pathological conditions, however, as in leucemia, and certain of the anemias they may be present in amounts as high as seven centigrams. The purin bodies are certainly very small in amount, as compared to the uric acid usually found. It is of course still a problem in physiological chemistry what the relationship of the purins to uric acid really is. Uric acid as a pathological factor has certainly had its day. All medical men are familiar with Haig's theory, but this is entirely upset by recent research.

Urinary Insufficiency.—Dr. Egbert Grandin said that the basis of the pains in the wrists, in the ankles, in the big toes, as they occur in so-called gout, or gouty conditions, is very interesting. It must not be forgotten, however, that analogous symptoms, preceded the puerperal condition as the result of urinary insufficiency. It is possible that the underlying basis of these painful conditions is a toxemia, whether the source of the poisonous products be the liver, the kidney or the intestinal tract. At the present time to substitute the term pure anemia for toxemia seems scarcely justifiable, as the knowledge of the profession is not sufficiently advanced and a new word will only serve to cloak ignorance and give an idea that something is known that in reality is not.

Intestinal Indigestion and Gout.—In answer to some questions referred to him by Dr. Wilcox, Dr. Ogden said that the products of undue intestinal fermentation may possibly be a basis for gout. Fermentations are usually accompanied by the presence of oxalic acid in the urine. Oxaluria is usually found to occur whenever indoxyl, as Dr. Ogden prefers to call it, is found in the urine. The question arises whether the oxalates are connected with gout. Dr. Ogden has never seen a case in which this seemed to be probable. Hence it would seem that intestinal fermentation is not connected with gout. On the other hand, Dr. Ogden has seen good results in gouty cases from the use of sodium phosphates, whose effect is evidently to lessen intestinal fermentation. In one case with marked symptoms, 10-grain doses of sodium phosphate, used four times a day, in a glass of hot water, before meals and at bedtime, gave very great relief. This remedy sometimes increases the tendency to intestinal fermentation, as every physician who has had much experience with it knows. Recently in diet lists, Dr. Ogden has seen cauliflower and asparagus forbidden and he has wondered what the chemical reason for the prohibition was.

Clinical and Chemical Gout.—Dr. James J. Walsh said that for many years it has been the custom for the clinicians to accept from the physiological chemist explanations for gout and treat his patients in accordance with them. Gout is now getting to be better understood from a clinical standpoint, and it seems to be evident that there are many forms and that not a few of the vague, painful conditions known as gout or attributed to the gouty diathesis, are really manifestations of a hyperesthetic nervous condition irritated by absorption from the intestinal canal of toxic products. In a word, the true solution of many of the therapeutic puzzles would seem to be in the hands of the clinician and in a greater individualization of his cases than in any all-embracing theory from the chemist, which has so often proved fallacious. Dr. Haig's theory has been accepted by practically all the profession, and now is universally admitted to be without any proper foundation in physiological chemistry. Uric acid formerly explained rheumatism and gout; it has been given up completely for rheumatism and must go for all other conditions. There is no such thing in the nicely adjusted metabolism of the human body as an excess of uric acid.

Frequency of Gout.—Dr. Walsh said that the subject is of much more importance here in America than is usually considered. If an American physician be asked what is the comparative frequency of gout here in America and in England he will be apt to say that we may see one-third, or perhaps even one-fourth, or one-fifth as many cases as they do in London. The statistics of Johns Hopkins Hospital for ten years show that for every four patients suffering from gout, admitted to St. Bartholomew's Hospital in London, three were admitted to Johns Hopkins during the same period. Gout is then three-fourths as frequent here as in England. American gout is all earned, not inherited. There are two principal methods by which it can be earned. These are lead and malt liquors. Twenty-five per cent. of all the gout in this country occurs in patients who have a history of working in lead. More than one-half of the remaining cases of gout occur in persons with a history of taking malt liquors. Even our lighter beers in America prove a source of gouty manifestations.

Difficulty of Diagnosis.—The disease is by no means so easy to recognize as is usually considered and very many of the cases here in America are missed. At Johns Hopkins Hospital Dr. Osler reports that one case had been admitted three times as rheumatism, when on its fourth application tophi were found in the ears. At the present time to substitute another word for the uric acid diathesis, by suggesting that there is some other poison in the blood and giving it a definite name, is apt to cater to the easy method of diagnosis which has in the past heaped together a lot of things and called them gouty or lithemic, or due to the uric acid diathesis. Even patients from the lower East Side who come to the dispensaries are now beginning to tell us that they have the uric acid diathesis. Dr. Walsh would plead for a more faithful study of individual cases and for less assumption of knowledge and presumption of chemical explanations where none exist and where to use words is only to have cloaks for ignorance to conceal the fact that as yet medical men are only groping in the dark over problems of metabolism, and besides all this, to hamper the development of rational therapy because of hypothetical remedies.

Apparently Latent Gout.—Dr. Frank Daniels said that where there are no true gouty manifestations there often seem to be painful conditions pointing to the existence of a gouty diathesis. In some of these cases later on tophi have been found. In a certain number of cases a chalky deposit occurs beneath the conjunctiva of the lid—more frequently in children than in older patients. Whether this is to be considered as due to gout is a question that has often proved a puzzle to Dr. Daniels. In some of them there is a gouty heredity, in others no such history can be found and the subsequent conditions are not such as can be considered to be associated with gout.

Dietary Considerations.—In closing the discussion Dr. Reynold Webb Wilcox said that with regard to large amounts of water, certain distinctions must be made. If taken with meals a large amount of water always disturbs digestion and thus increases the amount of uric acid present in the system. If taken between meals water serves to flush out the system, and then there is less uric acid as a rule. It must be remembered, however, that uric acid, as such, does not exist in the blood. The urates may be found, but it is hard to understand how the biurates accumulate at certain points and certainly the theory suggested by Haig for their occurrence, must now be rejected.

Nervous Elements in Gout.—There is now no doubt that nerve exhaustion plays a prominent rôle in the disturbance of metabolism, that must be considered as the basis of gouty manifestations. Dr. Wilcox has one patient to whom, when he comes back suffering once more with gout, he considers it necessary to tell that he has not enough brains to run his liver and his business, and he must take his choice as to which he wants to go on properly. It is well known that important cabinet crises in England always give a crop of gout cases among the political big wigs. This same form of nerve strain also may bring on diabetes, or may make a simple glycosuria become a true diabetes. This constitutes another important bit of evidence of the relationship between the disturbance of metabolism which leads to gout and that which leads to diabetes. Both of them are evidently related also to the diathesis which causes the deposit of fat in the tissues and gives rise to obesity, which is a real metabolic disorder.

Indican as an Index.—Before beginning treatment for gout, indican will always be found present in the urine and the progressive amelioration of the case can best be determined by means of the disappearance of indican. Commonly if any excess of phosphates have been present they will also disappear. As a rule, Dr. Wilcox has considered that oxaluria was also the result of suboxidation processes, somewhat as are diabetes or gout. In certain cases the alternation of sugar and an excessive amount of uric acid in the urine is not unusual.

Sodium Phosphate in Gout.—Some physicians seem to consider sodium phosphate as a possible remedy for the intestinal intoxication which causes gout. The difficulty always has been, however, in the use of this remedy that after a time symptoms of intestinal irritation were set up and even uncomfortable fermentative processes occurred. The reason for this has recently come to light as the result of the investigations of the committee for the correction of the Pharmacopœia. Nine-tenths of all the normal sodium phosphate on the market contains something more than traces of arsenic. This is due to its manufacture from sulphuric acid, made from pyrites containing considerable amounts of arsenic ores. It is not surprising that this form of sodium phosphate should set up fermentations. On the other hand, it is possible that when small amounts of the sodium phosphate are used, the small amount of arsenic administered may prove tonic and alterative and help in the good results sometimes obtained.

Gout and Toxemia.—There is no doubt that purinemia is a form of toxemia due to intestinal fermentation. The endeavor must be to make this term more specific, so as to get at the exact cause of the symptoms in order to treat them properly. Elimination must be encouraged, but, if possible, the formation of toxins must be stopped. It is this that Dr. Wilcox has attempted to do.

In answer to a question, Dr. Wilcox said that the formation seen in the lids of young children are often true gouty tophias, in his experience, he has found biurate in them.

Rheumatism and Gout.—Dr. Wilcox considers that acute rheumatism must be an infectious disease; that arthritis deformans is a spinal disease; that muscular rheumatism is closely akin to gout and that pleurodynia and other similar muscular pains are much more gout than rheumatism. He recalled the definition of the old Harvard Professor who said that muscular rheumatism was so called notwithstanding the fact that it was not rheumatism and was not in the muscles. It cannot always be cured by diet, however, and, if possible, remedies must be obtained for it.

Theory and Observation.—Dr. Wilcox considers that English physicians have made a serious mistake by attributing an activity in these chronic, painful conditions to uric acid, which it does not exercise. This substance must now be taken down from its pedestal and be allowed to sink into the obscurity from which it should never have been permitted to emerge. At the present time advances in physiological chemistry and more careful clinical observation seem likely to give more positive information in the next ten years than the medical profession has acquired during the last fifty. It seems probable then that many of the painful conditions will be found to be due not alone to one factor but to several factors. Something may be learned, too, of the reasons for the affinity of rheumatism for young people and of gout for the old. Possible combinations of gout and rheumatism will in themselves prove a serious and puzzling subject for study, but properly directed clinical observation will undoubtedly throw much light on obscure conditions.

NEW YORK PATHOLOGICAL SOCIETY.

Stated Meeting, held November 11, 1903.

The President, William H. Park, M.D., in the Chair.

Typhoid Bacillus Infection of Oysters.—Dr. Cyrus W. Field read a paper on this subject. The work was undertaken at the suggestion of Dr. Park to determine whether or not the oyster could be a means of infection, and if so, under what conditions it would act in this manner. After various experiments, it was found that the best method of infecting tanks in which the oysters were placed for observation was to sow the *Bacillus typhosus* on agar slanted in flasks; this incubated for twenty-four hours, at the end of this period the growth was washed off with normal salt solution; this was poured into the tank and more fresh salt solution added to the flasks to wash off the remaining bacteria. The oysters were removed at the end of certain periods and were examined bacteriologically. At each period five oysters were taken from the tanks, washed and scraped to remove as many organisms as possible from the shell. $^1/_{10}$ c.c. of juice was used to infect each plate; at the end of forty-eight hours 20 to 40 colonies were fished from each plate. They were planted in bouillon and at the end of twenty-four hours were examined in hanging drop and a strongly agglutinating typhoid serum was added. The dilution used was 1-800. If the organisms in the tube did not agglutinate they were thrown out and no further tests were made upon them. If they did they were planted in lactose, agar and milk. In the latter part of experiments he relied entirely upon the agglutination test. No organisms were found agglutinated in this series that did not react as *Bacillus typhosus* to the other tests.

No. oysters	No. bacteria tested per c.c. in infected tank	No. hours in infected tank	No. bacteria in infected tank	No. bacteria in oysters per c.c.	Per cent. of Bacillus typhosus in oyster
5	20,000	24	0	1,200	22
5	14,400	48	0	900	18
5	8,000	96	0	750	9
5	6,500	7 days	0	570	7
5	4,200	9 days	0	490	1
5	4,600	14 days	0	300	0

In the next experiment, oysters were taken from infected tank at the end of twenty-four hours and placed in an uninfected tank—fresh salt water, same as that in the Aquarium, used with all fishes.

No. oysters	No. bacteria tested per c.c. in infected tank	No. hours in infected tank	No. bacteria in infected tank	No. bacteria in oysters per c.c.	Per cent. of Bacillus typhosus in oyster
5	19,500	24	0	1,300	19
5		24	0	650	5·5
5		48		300	3
5		96		240	
5		7 days		200	
5		9 days		210	
5		14 days		190	
		21 days		200	
		28 days		190	

Never later than the end of the second day could the organisms be found in fresh water. This was due to the great dilution in the fresh water tank and their disappearance. On taking the sea water used in these experiments and infecting it with *Bacillus typhosus*, it was found that the organisms disappeared entirely from the water from the sixth to the eighth day. Fifty per cent. were destroyed at the end of twenty-four hours. Some oysters were removed from the infected tank and kept on ice; no diminution was found in the number of bacteria present per cubic centimeter up to the eighth day. The question is, Does the oyster ever come in contact with infected material, and if so, does not salt water dilute and destroy the organism? That is, if taken from deep sea beds and brought to fresh water. Oysters are removed from beds and taken to small or large creeks and deposited at low tide in drinking or fattening houses, built in the stream at its edge, and as the tide rises the house is filled with water which covers the oysters. As the water rises, one can hear the hissing sound made by the oyster in sucking it up. The specific gravity of this water is less than they are accustomed to, and by a process of osmosis the oysters are enlarged, making them fat.

The streams may be grossly contaminated by sewage. Should a case of typhoid occur in a town near the creek and these oysters become infected by discharges from the patient, those eating the oysters would have typhoid fever, as was the case in Middletown in 1894. This epidemic was traced to oysters fattened in a river. Patients lived on the stream near the drinking house and discharges were drained into the river. Wherever the oysters were shipped a typhoid epidemic followed. This condition of drinking houses is still the same in many places where oysters are shipped to the market. The only way is to forbid the sale of fattened oysters, or the establishment of oyster beds where the water might be contaminated, or the process of fattening where the water was or could be contaminated.

Dr. Wm. H. Park, in the discussion, said that if by the work of Dr. Field, and further experiments, it could be definitely proven that the bloated or fattened oyster was a source of typhoid infection, the Health Department would take the ground that oysters in New York sold in the shell, should not be oysters bloated or fattened in creeks, which are more or less grossly contaminated with town sewage which flows into the creeks. It is fairly easy for anyone used to it, to detect the bloated oysters from those taken from the deep sea beds. Those who care most for oysters, do not care for the bloated or fresh water variety; they prefer those from the deep sea, which seem to be safe.

Dr. Manges asked Dr. Field if the fattened oysters had any distinguishing marks, and what was the percentage of their sale in New York.

Dr. Field replied that there were no distinguishing marks to be seen, except by opening the oyster. If they were fat and plump and filled the shell, which normal oysters did not, they were almost sure to be fattened. The more reputable dealers would not handle them. Oyster connoisseurs would not touch them. They would detect the lack of the brackish taste of deep sea oysters.

Dr. Manges said that at Mt. Sinai Hospital there were a large number of typhoid cases each year, but for Mosaic reasons oysters were not consumed by many of these patients. Outside of the hospital, in cases of typhoid fever, he always made a point of asking about oysters. Wherever typhoid had been found in cases of oyster-eating they had been eaten outside of New York. He did not know of any cases arising in this city. He did know of cases of oyster infection coming from places in the neighborhood—Long Branch and Atlantic City. Two years ago at the latter place the water where the oysters were fattened was a splendid culture medium from sewerage contaminations. As far as New York oysters went, he thought we were pretty safe. Everything suspicious in oyster culture should be prohibited and if the Board of Health would make known the point

emphasized by Dr. Field, how to tell the fattened oyster, it would afford oyster lovers satisfaction and protection. Many were afraid of the oyster on account of this agitation.

Dr. Park said that Dr. Field had said that on account of newspaper talk, the demand for oysters had fallen off one-third. It was true they did not know of any such cases in New York, but they could, by such safeguards, make the use of oysters perfectly safe. Not interfere with their use, but rather allow people to use them.

Prof. G. N. Calkins gave a demonstration of the results of his studies on the bodies found in the lesions of variola. The bodies seen were the same as those originally described by Guarnieri and Pfeiffer, and more recently by Councilman, who had placed the material for the present study in Prof. Calkins' hands. It had been fixed in Zenker, preserved in alcohol, and stained by the method described by Borrel in the Pasteur Annals, 1901, p. 49. Three possible cycles of development of the organism have been traced, the most important of which, the sexual cycle, we owe to the observations of Prof. Councilman. This is intranuclear. The first cycle is a simple growth with segmentation into gemmules, which then infect fresh tissue cells. In the third, which also appears to be a sexual cycle, pansporoblasts are formed, which break up, leaving a Restkörper. Vesicular bodies, similar in appearance to those described in the epithelial cells in variola, are also seen in carcinomata and sarcomata, and in the tissues infected by diphtheria, but the varioloid bodies can be distinguished by the fact that a complete series can be traced.

Dr. Tyzzer, in the discussion, gave a brief outline of his work. He said he had made a comparative study of the lesions following vaccine inoculations and the specific inclusions which accompany those lesions. In taking up this work before being fully convinced that these inclusions were organisms, he followed out various hypotheses. In superficial examination, these inclusions may resemble various sorts of degenerations. He sought to trace these inclusions back to included leucocytes, red blood corpuscles, or degenerations of the protoplasm of the cell. After studying a great many lesions he had been unable in any case to find any form which links the typical characteristic inclusion with any of these degenerations. In vaccine lesions he had found that they formed the same series as given by Dr. Calkins for the cytoplasmic forms. The organisms at first lie between cells, become larger by growth, take their position near the nucleus, and finally undergo segmentation into new forms. Concerning nuclear forms, he found none, although degenerating and disintegrating nuclei were found. The experiments had been made upon the tissues of rabbits and various other animals on cornea, skin and mucous membrane. It was quite evident that these inclusions bore some resemblance to degenerations, but after a study of lesions in these various animals and in the various tissues of these animals, he still considered that they are organisms. In the course of this work lesions were studied from a series of one hundred rabbits, several guinea-pigs, two sheep, twelve calves and three adult cows.

Dr. W. R. Brinckerhoff spoke briefly of work done by him with Dr. G. B. Magrath, under the direction of Dr. W. T. Councilman, upon the lesions of experimental variola in the monkey. They found many of the forms described by Prof. Calkins in the lesions of smallpox in man, the work being strongly confirmatory of the work of Prof. Calkins. Mention was also made of a degeneration of certain cells of the testicular epithelium in acute diseases which led to forms simulating a certain stage of *Cytorrhyctes*. He then pointed out the grounds on which such a degeneration product could be differentiated from the parasite.

Dr. Anna W. Williams said that before Dr. Councilman's very important paper appeared, their section work was mainly with rabbits' corneas inoculated with vaccine virus. Since his paper, they had begun the study of serial sections from monkeys inoculated with variolous virus from different cases of variola. This work was practically just begun as they had studied sections from only two monkeys, and she therefore felt some hesitation in speaking about it. She wished to mention, however, one or two perplexing points. Their two monkeys showed a great difference in reaction to the inoculation of the virus. In one, the eruption developed late and was of a mild form. In this one, very few definite intranuclear changes were found. In the other monkey, an early and abundant eruption developed, and both the intracellular and intranuclear changes were marked. In sections from this monkey they had found nearly all of the forms described by Dr. Calkins, but they had not yet been able to trace out the definite, consecutive cycle described by him. In the first place, there seemed to be frequently beginning vesiculation with no bodies present either in the vesiculated cells or in those in their immediate neighborhood. Then the intracellular forms showed an extreme irregularity in the time of their appearance, and in the size of the ameboid forms, and in the size and shape of the segmenting forms, more of an irregularity than Dr. Calkins had described in his remarks. Of course, they knew that they might have degenerative changes in such a protozoon, as well as in the host cell, and that such degenerative changes might occur more frequently in one monkey than another, giving at times a very complicated picture. Such a condition might account for some of the peculiar intranuclear changes which they had found. They had been able to trace a series of apparently undoubted degenerations into which some of the forms shown by Dr. Calkins seemed to fit. A substance appeared in the nuclei in advancing lesions which stained a homogeneous, brilliant pink, with hematoxylin and eosin, and a greenish blue with magenta and indigo carmine. This substance first appeared in small, irregular masses, often by the side of the principal chromatin mass of the nucleus. As the lesion advanced, this substance was often seen partially, and then completely surrounding the chromatin mass, leaving that as a small, more or less rounded central body which takes the chromatin stains as a rule brilliantly. Such a picture seemed to resemble one of the first stages of the primary sporoblasts as described by Dr. Calkins. Other nuclei were more or less filled with this homogeneously staining material, most, however, still retaining a chromatin mass. Many of these later nuclei contained in this homogeneously staining material, irregular granules, some highly refractive, and others not, some larger with a vacuole-like center approaching definite ring bodies in appearance, and some of these with a central granule. It was thought by the speaker that these appearances might be due to mixed protozoan infection and degenerative changes, but, so far, they had been unable definitely to say that they were due to more than degenerative changes.

Dr. James Ewing said that he had heard Dr. Calkins' presentation three times and felt that it had become more convincing in each repetition. From the very first he had been greatly impressed by the examination of the specimens, and had felt that we were probably face to face with the solution of the problem of variola. He had never been quite free from doubt, however, regarding the interpretation to be placed on the intranuclear forms, while in regard to the extranuclear vaccine bodies he believed that no one could afford to ignore the

generally accepted opinion of pathologists that these bodies represent degenerative products. The line of proof thus far brought forward to demonstrate the protozoan nature of all these bodies, intra- and extranuclear, seemed to him incomplete. Very little or no attention had apparently been paid to the possibility of reproducing the intranuclear forms by other methods. In his own study of vaccine bodies he had become familiar with and overwhelmed by the host of structures in necrosing variolous lesions which recall the forms of protozoa, and early concluded that it would be impossible to demonstrate the presence of a definite protozoan cycle on the basis of morphology alone. During the past year he had been attempting to ascertain if vaccine bodies varied in the different animals known to be susceptible, and in any others that might be made to react in any way to inoculations of vaccine; in other words, to establish a comparative morphology of vaccine bodies. He had in this way compared vaccine bodies produced in man, monkey, rabbit, frog, and mud-puppy. The same type of extranuclear body, in general, seemed to be produced by vaccine in each of these animals. One could hardly believe that the same protozoon was capable of growth in animals so distantly related as man and batrachian. He thought that the appearance of the vaccine body in so many different animals could with difficulty be reconciled with the protozoon theory, and seemed to indicate rather that this body represents a universal function of the diseased epithelial cell rather than a particular microorganism invading a cell. Early in 1903, Sikowsky, a Russian observer, reported that vaccine bodies in the cornea could be reproduced by inoculation with diphtheria toxin. In repeating this work he had been greatly surprised to find that within twenty-four to forty-eight hours after inoculation of the rabbit's or frog's cornea with diphtheria toxin practically the same changes were produced as by vaccine. The very numerous forms of bodies produced resembled in striking fashion those seen in variola and vaccine. Some of them were totally different in type from anything he had ever before seen as a result of degenerative processes, and it would have been difficult to have imagined them to be of such origin had any other conclusion been possible. In tracing the origin of these bodies he had come to the conclusion that they originated from a peculiar form of coagulation-necrosis with the production of a semifluid elastic material, which, by comminution and vacuolation reproduced many of the protozoon-like forms of vaccine bodies. This necrotic process involved either the nucleus, or the cell body, or both. It produced minute or large rings and globules, intranuclear or extranuclear, single rings or congeries of vacuoles, rosette-like bodies, and very peculiar cyst-like bodies large and small. Many of them he found indistinguishable from similar bodies he had seen in variolous lesions, and strongly resembled the bodies included in the cycle of the variola parasite. In drawing conclusions from these observations he felt one could not safely claim that no protozoon forms are mixed up with the vaccine bodies in variola, but they did seem to show that the morphological evidence so far presented had failed to demonstrate any protozoa in variola, and that morphological studies alone if limited to variola would probably always remain indecisive.

Prof. Calkins, in closing the discussion, said that he felt quite sure that the bodies he had just described were parasites and not degenerations.

Neurofibroma of Hand.—Dr. D. S. D. Jessup presented a neurofibroma removed from the hand of a woman in April, 1903. The patient was thirty-four years old. Two months previously her attention had been called to a swelling in the palm of her hand. This had increased in size and become painful, and she came to the Vanderbilt Clinic for relief. Examination showed an elongated swelling on the palmar surface of the left hand extending from the base of the second metacarpal bone to the middle of the first phalanx of the index finger. It lay over the flexor tendons of the index finger, was soft, apparently fluctuating, and a diagnosis of tuberculous tenosynovitis was made. Under ether anesthesia an incision was made the length of the growth, and it was then easily dissected away from the surrounding tissues. The tendons were not exposed, but at the ends of the tumor a pedicle was found which proved to be a division of the medium nerve. On reaching the tumor the nerve broke up into small filaments which were distributed over its surface. After removal the growth measured 9 cm. in length, was lobulated, and was 2 cm. in diameter at its thickest points. The consistency was soft. Section after hardening with formalin showed firm white fibrous tissue. Transverse sections were stained by the hematoxylin-eosin, Picro-acid-fuchsin and Weigert methods. They showed a growth of fibrillated connective tissue which was very cellular. The whole tumor was made up of this tissue with the exception of a few bundles of nerve fibers lying on the surface, which corresponded to the nerve filaments noted at the time of the operation. The tumor had apparently sprung from the perineurium and there was no proliferation of the nerve fibers. The patient did not show tumors of any other nerves, and the case was also interesting from the standpoint of surgical diagnosis.

NEW YORK ACADEMY OF MEDICINE.

SECTION ON ORTHOPEDIC SURGERY.

Stated Meeting, held December 18, 1903.

The President, T. Halsted Myers, M.D., in the Chair.

End Result in Congenital Dislocation of the Left Hip—Lorenz Method.—This was the presentation of Dr. W. R. Townsend. N. V., female, aged nine and a half years, had no treatment until at the age of five years, when the hip was easily reduced by the Pacci method, and placed in plaster-of-Paris. At the end of six weeks, the plaster having become soiled, it was necessary to change it, but the parents refused to have it reapplied, and nothing further was done. The child walked with marked limp, but did not tire, except after excessive exercise. November 3, 1902, 1½-inch shortening; trochanter one inch above Nélaton's line. On December 26, 1902, Dr. Frederic Müller, at the Polyclinic Hospital, before the class reduced the hip by the Lorenz method and applied a short spica bandage. Three months after the operation the plaster was reapplied. Six months after the operation the limb was brought down to about 45 degrees of abduction. On November 2, 1903, the plaster was entirely removed. Since then the child has been allowed to walk. December 11, 1903, the child walks with very little limp, has no pain, does not tire easily. R. A., 25½; L. A., 25; trochanter about a quarter of an inch above Nélaton's line, limb held in abduction. There is one-eighth of an inch shortening of the bones of the leg, and the radiograph shows great difference in the development of the two femora and the head of the bone in the acetabular cavity. Passive motions: Flexion can be carried beyond a right angle, abduction and inward rotation not limited, extension nearly perfect. This case is presented as a success in a patient beyond the age limit that has been suggested by Lorenz, in which success can be reasonably expected by the non-bloody operation.

Double Congenital Dislocation of the Hip.—Dr. H. L. Taylor presented photographs of the hip which pre-

sented some peculiar features. The child, twelve years old, walked cross-legged with the left leg in front of the right, crossing at or above the knees. The dislocation was not posterior on the dorsum, but superior anterior. The head of the bone was easily felt behind the anterior superior spine of the ilium, and the trochanter and neck could be easily palpated. An X-ray had confirmed the diagnosis. In addition, the child had an equinovarus of the right foot and a left pes valgus. These congenital deformities of the feet had never been treated, and the first step was to correct them, which he had done; the flatfoot by manipulation and tenotomy of the peroneals, and the equnovarus, which was very severe, by a modified Phelps' operation. The hip-joints at present are firm in their new sockets, and for that reason, and considering the age of the child, the speaker did not think it advisable to attempt reduction, but preferred to correct the deformity by the Gant's operation.

Study of Relapse After Reduction of Congenital Femoral Dislocation.—This was the subject of Prof. E. H. Bradford, of Boston. The main points of this interesting paper were as follows: The bony acetabulum nearly always is well formed, but shallow. The cotyloid ligament is the main instrument holding head of femur in position; therefore, in reducing dislocation use just as little force as possible, so as not to weaken or destroy this ligament. This is generally torn by the motions of hyperextension, and pressure forward of head while limb is in extreme abduction. Other causes of relapse: Poor support of plaster spica after ecchymosis and swelling have disappeared and muscular atrophy has occurred. Contractures of injured parts form and hold great trochanter in its position close to tuberosity. When the limb is brought down to normal position, trochanter is held by these adhesions and head of bone is therefore forced to move over edge of acetabulum forward and upward. The paper was illustrated by specimens, lantern slides and models.

Dr. Adams, of Boston, in discussing the foregoing paper, said he had seen a large number of cases come back out of place, and he thought ecchymosis and hematosis resulting from much manipulation during operation, might be one of the causes. He thought in a fair percentage of cases, relapse could be attributed to the insufficient holding of the hip by the plaster cast. He thought an apparatus could be put on a month after operation, which could be slipped off and on in two or three minutes, and the patient examined every two weeks.

Dr. V. Gibney was glad to hear Dr. Bradford and Dr. Adams express themselves on the subject so ably. He had had an impression that the very things criticized were the things we were trying to obtain—that is, atrophy of the muscles, and looseness of the plaster so long as the head had been placed in position and there was good abduction. The constant thumping and weight-bearing function of the body tended to thicken the capsule and make it shrink more or less into a firm capsule about the head. Whether the bone slipped out of place in the plaster or not was not clearly proven. He had seen cases after removal of the plaster, where the head of the bone was not in good position. Dr. Bradford's contention was that this muscular tissue which had been torn, cicatrizes and becomes firm, dense tissue, and as the attempt is made to bring the shaft around into position, this does not yield, but the head slips forward and later on there is, as he had seen in a number of cases, an anterior position, when he had felt sure, at the time the plaster was changed, that there was no relapse. He thought Dr. Bradford had made it very clear, that if there was this shortened dense tissue as opposed to the imperfectly contracted capsule, as the limb was brought around on its axis, recurrence resulted. Dr. Bradford's point was not to overstretch the capsule. The next way of preventing recurrence is to take down the plaster earlier than six months, if the bone is in place, and not give the tissues time to become dense and shortened. These are the two points: Not to stretch the capsule too much, and not to leave too long in position.

Dr. Bradford said the idea was to take the head of the femur and bore a hole large enough to get the center of the head in the center of the socket as nearly as possible, and as much of the capsule and cotyloid ligament that holds it should be saved as practicable. If one wanted to have his trousers held up, he did not destroy his suspenders. Too much stretching should not be done. After the head of the bone was in place, it should be looked at to see whether it had slipped. If it had slipped in the first month, it could be put back.

Dr. V. Gibney asked how he brought it down in good position without interfering with this tissue?

Dr. Bradford said his idea was that in a month that tissue would be cicatrized. It was comparatively loose. One could take the X-ray and see where the head was, and move it or do what was required. It was in a pliable condition in a month. In six months it would not be so easy.

Dr. W. K. Townsend said he was much interested in this matter, especially of late, since the cases done by Lorenz had been taken down. The patient presented at the meeting, done by Müller, was one of the best results he had seen of any operated on at that time in New York. Because failure occurred, it did not follow that the Lorenz method was not good. As far as reducing the dislocations was concerned, Lorenz was the best operator in the world, but the end results showed that there was something in the after-treatment or dressings that needed improvement, as hips apparently perfectly reduced, months afterwards slipped out. The studies Dr. Bradford was making would probably prove of great value. He was working to ascertain why so large a percentage of cases relapsed. Dr. Townsend was not sure the reason of failure was damage of the capsule, nor the facts, as stated by Dr. Bradford, in regard to position. The speaker thought there was no question that the less you damaged a part or tissue, the better the result would be. Damage may have been done in the past by demonstration, to show how a hip could be slipped in and out. The use of a machine in reduction might prove a success, especially in the older cases. The percentage of perfect results or cures, he thought, when all the cases were tabulated, would probably be under 25 per cent. He did not consider an anterior reposition a cure, as the femoral head was not in the acetabular cavity, nor was it proper to report a case as cured under a year, as many that had been apparently cured relapsed shortly after removal of the cast. Those in which the head of the bone slipped out of the socket before the removal of the dressing could only be classed as failures and the shrinking of the body away from the plaster spica might permit this to occur in some cases.

Dr. Taylor said he had been exceedingly interested in Dr. Bradford's beautiful demonstrations and also in the experiences he had had, with others, in taking down congenital hips in the last few months and noting results, and in some things he had seen on the other side last summer. In Paris there were two men who had some ideas on the management of congenital hip which were new to the speaker. Kirmisson made a great point of making the reduction over the inferior border of the acetabulum. After overcoming resistance of the abductors he used hyperflexion, bringing the head opposite

the inferior border, and by rotating outward, it slips over the rim. Dr. Calot, of Berck, made a great point of putting the legs up in the inverted position. He said, as does Dr. Bradford, that closer apposition of the head to the acetabulum may be obtained by inverting the legs. The knees have to be flexed and fixed in that position, and that means that the child cannot walk if it is two-sided. He said the child could get along without walking, and that the weight-bearing feature of the treatment was not necessary. The first actual case of reduction seen was in Paris, by Dr. Bradford, who used a procedure similar to Kirmisson's. The case was one of a girl of twelve years, who was very thin and delicate. Everything was done with the greatest possible deliberation. He used no massage of the adductors whatever, he simply stretched them, and they gave way with perfect ease by that method alone. The hip was reduced in fifteen minutes, including pauses, with very little exertion, and no violence at all. It was probably not so difficult as most cases of twelve years, on account of the thinness of the girl. In Paris and Berck they were taking off plaster splints in five to six months. In Berlin they were taking off the plaster in three months. Some of the cases seen by Dr. Taylor, where the splints were removed in three months, seemed to be as perfectly reduced as those seen here at the end of six, eight and twelve months. An important point was that the operations should be done with more deliberation and less violence. He had done several operations this fall without massage, but they were very young cases, and not convincing. The ecchymosis afterward was very much less. He thought there was a future for mechanical reduction; although he had had no experience with it, it appealed to him on rational grounds.

Dr. Murphy said he had seen the work of Professor Lorenz in Vienna this spring. He had seen a great many good results and some poor ones. He saw Lorenz's after-treatment of all his cases. A great many were attended to by his wife, who seemed to be the head of that department, and was very successful.

Dr. Fisk said that between 1896 and 1899 he had had charge of twelve cases. The last time he had looked up the record, about 60 per cent. had relapsed. He did not mean to say that 40 per cent. were cured. Many cases relapsed because reposition had not been done in a perfect manner, and many secondary displacements occurred through careless after-treatment. The cases should be kept in the wards for the first three months and watched very carefully, and the position of the head of the femur noted by X-ray.

Dr. Townsend said that Dr. Lorenz himself returned to this country and removed several plaster casts. He dictated the notes. He examined four cases; there was not a case of the four which he said was a perfect anatomical reposition. They had been in the plaster he originally applied six months, therefore there was no question as to change of dressing, etc., by different physicians.

Dr. Jäger said in 1900-1901 Dr. Schäder was using an orthopedic appliance in preference to plaster-of-Paris after reduction of dislocation, as did Dr. Hoffa. Dr. Jäger thought subtrochanteric osteotomy valuable in cases of anterior or posterior twists of the neck of the femur; thus allowing the feet to be made parallel without danger of redislocation.

Dr. Myers mentioned a case reduced three times with the ordinary manipulations of Lorenz, each time relapsing. About one and a half years ago he reduced the hip by the open method with the assistance of Dr. Harry Sherman. The head was strongly anteverted, and the capsule, tightly constricted about the head, had previously been reduced with it into the acetabulum. The limb was put up in marked inversion, exion and abduction. Three months later, after subtrochanteric osteotomy, the leg was rotated forward 45 degrees, leaving the head in good position. The boy has a perfectly reduced hip, with almost no motion. Lorenz left the plaster on for six months, for the express purpose of allowing contracture of the abductors, stating that when the limb resumed its original position, the head would thus be driven more firmly into the acetabulum. As to manipulation, Dr. Myers did not think he had gained anything by massaging the adductors. After being held in plaster for six months, the muscles became atrophied, and it would be better to shorten the treatment if possible.

Dr. Adams said that Dr. Bradford had shown in one specimen the leg put up in a posterior position. He thought it would not do in a shallow acetabulum. He thought in a large number of cases when the leg was put in that position, and the leg forcibly adducted, the trochanter acted as a fulcrum on the side of the pelvis to pry the head out of the socket.

Dr. Homer Gibney said that since Dr. Lorenz had visited this country, the surgeons at the Forty-second Street Hospital, had been putting up cases of hip disease in which practically all disease had been arrested and the brace removed, in the short, light-weight plaster spica. The men in the plaster room, Out-Patient Department, at the hospital, put on these casts without any assistance whatever, except such as given by the mother or father of the child. He had recently seen one of the staff applying one. The patient, a child, was on the table, securely balanced on the hip rest and cushions under the shoulders. The doctor was putting on the cast with great dexterity, with no assistance whatever. This is being done every day at the hospital by almost every one on the staff from House Surgeon down to Junior's Assistant.

The Bartlett Machine.—Dr. Bradford said, when using the Bartlett machine, in order to protect the skin, they covered the foot with felt and then over the felt they put some leather free of oil which by soaking was made as soft as moose hide. That was shaped around the ankle the night before. A close hitch of rawhide was put around that. In this way a 300 kilo pull could be put on without the slightest injury to the ankle or knee. For the past year he had been trying to get the joints in position without operation of any sort. He was inclined to think if, as in the case of Dr. Myers, in order to secure the head in place it was necessary to turn the toes in and keep them in, a subsequent osteotomy would be necessary. Dr. Bradford said we did not know how many children had a twist of the femur pointing forward nor how much of a twist was compatible with locomotion; until that was known, care must be exercised about osteotomy. Dr. Adams had examined a number of cases, in which the Bartlett machine was used. A man did not want to talk of cures until the patient had been out of plaster and walking about for a year. Dr. Adams' cases ranged in age from thirteen years to four years. Of the older cases one failed absolutely. That was a boy of thirteen years, with strong muscles. He was cut down upon and afterward it was found that the head was misshapen, and the socket small. By no manipulation could it be put in. The head was shaved and an attempt made to put it in the socket, but it slipped. Two cases of twelve years, were thought to be put in; they were still in plaster. Dr. Adams had examined them and thought they had slipped. In a double case, ten years of age, one was put in but slipped; it will be put in again. The other will be put in also. In a girl of nine years,

the bone was put in; X-ray showed that it had slipped, as was thought because the plaster was loose. One of four years of age went in very easily. It has been taken out of plaster. The capsule is now loose; it may slip. Up to date the record of machine cases is pretty good. Thirty per cent. of cases have been failures; the others apparently have not relapsed.

Dr. Taylor showed a number of instruments: plaster cutters: acetabulum scoop, in different sizes, giving a firm grip; another plaster tool; the old Wolf forceps for separating plaster and prying it up after cutting it. The Adams saw, modified by Mr. Jones, having a very beautiful handle modeled after the ordinary carpenters' saw, giving perfect control; tenatons devised and used by Mr. Jones, with straight edges somewhat advanced from the handle. Dr. Becker's hook for hooking up tendons, etc.

Several plaster-of-Paris pelves were shown by Dr. Myers showing the result in cases of congenital dislocation not operated upon.

Dr. Bradford showed a three months' fetus having a very strong cotyloid ligament, also an older fetus having the same ligament well developed. In another fetus showing congenital dislocation, the ligament was not seen. He showed a specimen of double congenital dislocation in a child of two years. The hips on both sides had been reduced, but did not stay. One was cut down upon and that stayed reduced. The child died of whooping-cough before the second hip was cut down upon. It was found that the bloodless operation failed because the acetabular ring was much smaller than the head. Another specimen was shown, of a child not operated on. The capsule was stretched over the acetabulum, covering it like a drum head. A specimen was shown of congenital dislocation which had been cut down on with the old Hoffa method. A good socket, as was thought, was bored out. The child died of diphtheria. On making a section, it was found that so far from making a satisfactory socket, the new socket was half an inch above the natural socket, which was quite deep and very good.

NORTHWEST MEDICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held January 5, 1901.

The President, Wm. Egbert Robertson, M.D., in the Chair.

Pancreatitis was the title of a paper read by Dr. John B. Deaver, in which he stated that he did not believe that the disease was such an uncommon affection, but that it was comparatively seldom recognized. After going fully into the anatomical structure and position of the organ, he remarked upon the variation in size and structure of the two ducts (the duct of Wirsung and the duct of Santarini) as shown by the work of Opie thereon; he referred to the close association of the pancreas with the biliary passages, and divided pancreatitis into the acute, subacute and chronic forms, the former being subdivided into the hemorrhagic, suppurative and gangrenous. The most important symptoms are epigastric pain, tenderness, tension and tumor, with or without obstructive jaundice, and evidence of mechanical interference with the mobility of the stomach and duodenum, the point of greatest tenderness is usually about one to one and one-half inches above the umbilicus. It is most frequently mistaken for obstruction of the bowel and may be confounded with gastric poisoning, phlegmonous inflammation of the gall-bladder, or the end of the appendix that is directed toward the liver or epigastrium. He stated the causes to be infection of the biliary passages, infection from the intestines and trauma. It is usually accompanied by fatty stools and total extirpation of the pancreas will be followed by glycosuria.

Dr. John H. Musser then considered the subject from the standpoint of the medical diagnosis, and believed that the reason pancreatitis had been so seldom recognized in the past was owing to the tendency to attribute the condition to other causes, as it was not until the work of DaCosta that jaundice was considered a pancreatic symptom, being always referred to the biliary tract. Among the symptoms he enumerated were epigastric pain, diarrhea, nausea and vomiting and, in the late stages, of the condition tumor. He called attention to the fact that prior to the work of Fitz, Mayo Robson and Oser very little attention was paid to the pancreas at autopsy. He divided the condition into (1) acute pancreatitis without hemorrhage; (2) acute pancreatitis with hemorrhage; (3) chronic pancreatitis. In the first variety there is usually the outpouring of a large amount of serum into the lesser peritoneal cavity, causing rapid effusion, accompanied by epigastric pain, nausea, vomiting and epigastric distention and resistance, with or without dull tympany. The effusion interferes with the action of the lungs and causes the symptoms of dislocation of the heart, and may be accompanied in six to eight hours after the onset with moderate jaundice, and is frequently confounded with gall-stones and intestinal indigestion. Hemorrhage may occur from three to four, or even as late as twenty-four to forty-eight hours afterward, and will be accompanied by symptoms of shock. He reported a case of the first variety occurring in a woman aged over sixty years, accompanied by jaundice and interference with respiration. Operation revealed a considerable amount of fluid in the peritoneal cavity. Drainage was established and the patient made a good recovery. The second variety was illustrated by the case of a man who was thrown from a wagon, and later epigastric pain and vomiting ensued, but no shock; examination revealed a large, dull tympanitic tumor, which was the cause of considerable distress. Exploratory operation showed the peritoneal cavity to be filled with fluid and death ensued in twenty-four hours.

Chronic Pancreatitis.—The symptoms of this disease were enumerated as follows: Flatulency, shock, chronic intestinal indigestion, epigastric pain, obstinate constipation, and diarrhea with fatty stools, and intermittent glycosuria. The patient is usually under middle life, and generally moderately emaciated or very fat, and has suffered from time to time with attacks of pain, which have probably been diagnosed as intestinal indigestion or gall-stones; in these persons as a rule there is gastric atony. If the patient takes a large amount of cream or fat it may be recovered from the stools. In the thin patient there is ptosis of the organ and it is usually very hard, but in the fat patient, physical examination usually shows no evidence of disease of the organ. There are usually present symptoms of anemia (either constantly or at times), gastric disturbance and neurasthenia. He referred to a patient who had suffered from two attacks of pernicious anemia within two years. The X-ray revealed such a mass in the pancreas as would indicate a carcinomatous growth. Operation was performed and the patient made a complete recovery, and at this time it was found that the pancreas was large, hard and indurated, being evidently a pancreas surrounded by a lot of blood. The presence of fatty stools and glycosuria should always excite suspicion, and careful observation, both clinical and laboratory, should be made. He

believed the condition to be one purely for surgical relief, and that the plan offering the surest means of relief was drainage through the gall-bladder.

Surgery of the Pancreas.—Dr. Deaver then considered this subject, in which he stated that hemorrhage should be controlled by tying the tissues of the pancreas, and the bleeding stopped by deep sutures. The great danger in wounds of the pancreas is the escape of the secretion into the peritoneal cavity, preventing the formation of adhesions and rendering secondary hemorrhage probable. Great care should be taken to keep the secretion from the injured gland from the abdominal cavity during the operation and drainage should be established.

Acute Pancreatitis.—This case was also reported by Dr. Deaver. The patient, an alcoholic subject, was operated upon immediately upon his admission to the hospital, prior to which time he had been sick two weeks. The tumor was quite evident on physical examination, and the X-ray demonstrated a shadow that did not move with the diaphragm. Operation revealed no effusion into the lesser peritoneal cavity, but extensive fat necrosis of the great omentum; the pancreas was very hard, but did not feel as though it contained fluid; the gall-bladder, which was filled with stones, was opened and evacuated and drainage established, the patient dying in about forty-eight hours. The operation should be done at the earliest possible moment, the cavity being walled off to prevent the infection of surrounding parts by the escaping fluid. In chronic peritonitis, drainage should be established through the gall-bladder and allowed to continue for from four to six weeks. In gall-stone operations it was recommended that every duct be explored, which it is possible to fathom, in order to avoid leaving any stones.

Dr. Mueller referred to the importance of establishing drainage in the chronic cases, and states that he believed the chief cause of the condition was obstruction of the islands of Langerhans. In the autopsy of the case reported by Dr. Deaver (which he had performed), there was an excess of abdominal fat, the pancreas being in a state of fat necrosis and very hard. The pancreas was in an acute suppurative condition, only part of the field of operation being the seat of hemorrhage. The antrum of Vater contained a few red blood cells: there was marked congestion of the lungs and a little peritonitis in the two upper quadrants of the abdomen.

Dr. Samuel Wolfe remarked upon the meagerness of the literature upon this subject and recommended that all cases presenting symptoms of intestinal indigestion be carefully studied, particularly those in which glycosuria and fatty stools were present. He believed that there was a close connection between the lesions of the Island of Langerhans and glycosuria.

Dr. McGlinn believed that the condition was eminently one for surgical treatment, and recommended exploratory operation in suspicious cases, believing that such procedure with drainage of the gall-bladder would cure many that otherwise terminated fatally.

Dr. Howard S. Anders reported a case occurring in an alcoholic, who reported that he had been a hard drinker and had frequently suffered from attacks of indigestion. Examination showed a small, rapid pulse, excessive perspiration, considerable epigastric pain, and decided tenderness a little to the left of the middle line, but no evidence of tumor or obstruction. Death ensued in a few hours and autopsy revealed chronic infiltration of the pancreas. He also referred to a case which had been under his observation, suffering from severe symptoms of indigestion in the epigastrium, without jaundice, but with a tender spot about the size of a silver dollar a little to the left of the median line, which he is inclined to believe is a case of chronic pancreatitis.

Dr. William Egbert Robertson referred to the accessory pancreas which also contains the Islands of Langerhans, and which he believes are sufficient to prevent the occurrence of glycosuria in large amount. He felt that many of the cases of so-called nervous diabetes could be traced to gall-stones. He also directed attention to the syphilitic variety of pancreatitis.

Dr. Deaver, in closing, emphasized the importance of prompt surgical interference in these cases.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, held January 5, 1904.

The President, Pearce Bailey, M.D., in the Chair.

Ptosis Relieved by Operation.—Dr. B. Sachs presented a young man who had been under his observation for a number of years. He had been apparently well until about ten years ago, when he had an apoplectiform seizure, which resulted in double ptosis and palsy of all of the ocular muscles. There was some recovery, but at the present time there was almost complete paralysis of both recti externi, and the up and down motions were still considerably restricted. The rectus externus of the left side had recovered most. The lesion was evidently in the vicinity of the aqueduct of Sylvius, involving not only the third nerve, but the sixth and fourth nerves. For many years this man had had a very persistent tachycardia, and it was assumed that he had had a chronic endocarditis, and that an embolus had passed into the basilar artery. Quite recently another possibility had arisen, *i.e.*, Dr. A. Wiener had found what he considered to be a specific lesion of the fundus. Possibly, therefore, the original condition was a thrombosis resulting in considerable softening. The speaker thought that after a certain length of time, when the ordinary therapeutic procedures had failed to bring about a favorable result, it was proper to resort to surgical means for relieving the ptosis. Dr. Alfred Wiener, supplementing Dr. Sachs's report, said that before the operation, which he had done, the left eyelid hung down to the full extent. The operation done was that known as the Hess operation. An incision was made along the brow, the skin was dissected away and three deep sutures were inserted so as to practically attach the lid to the frontalis muscle. There had been no sacrifice of tissue, and the natural folds of the lid had been preserved. There were a number of pigment spots on the periphery of the retina, a condition often found in young children suffering from hereditary syphilis. It was extremely probable, therefore, that this man was suffering from hereditary syphilis.

Dr. W. M. Leszynsky said that if the man had a ptosis and a paralysis of the third nerve, and the operation were done, and there was diplopia, the resulting condition would be worse than before the operation.

Dr. Sachs said that he had intended to emphasize the point that if there were a diplopia, other ocular muscles should be cut hereafter and a proper equilibrium of the muscles restored. He had had this done in a number of stubborn syphilitic cases, at the suggestion of an aphthalmologist, and the results had been very satisfactory. He would, therefore, recommend the operation not only in ptosis, but in any ocular palsy of long standing.

Postdiphtheritic Hemiplegia, Probably of Neural Origin.—Dr. Joseph Collins presented a boy of nine

years with paralysis and contracture of the left hand and foot. He had first seen the patient at the request of a surgeon, who suspected a tumor of the cortical motor area. The history was: Two and a half years ago the child had a severe attack of diphtheria, for which antitoxin was administered on the fourth day. A week later the child was very weak, and his hands, feet and face were swollen. About three weeks after the onset of the disease he began to walk, and then it was noticed that the left foot dragged. A day or two later the left hand was observed to be weak. A week or so after that the left angle of the mouth was seen to be drawn up. Oftentimes on attempting to swallow fluids, they regurgitated through the nose. The mother did not recall the boy's having had choking spells on swallowing. Between two and three months after the onset of the paralysis the hand and forearm began to flex and the hand to abduct, so that the elbow stood out from the body further than the shoulder. The hand became tightly clutched and gradually drew up until it was held behind the head. This condition lasted about a year. During this time the endeavor was made to overcome this position of the hand by making him carry a weight in it and by using a Whitely exerciser. About eighteen months after the onset of the paralysis the face became straight, but the condition of the foot remained such that when he attempted to put on a shoe he had to wait until the toes became extended, and if the shoe were not slipped on immediately at that moment he would have to wait half an hour before the flexor contraction or spasm would again relax. He never complained of pain. He attended school during this time, and was always bright in his studies. On admission to the Hospital for Ruptured and Crippled on October 23, 1902, he walked with a limp on the left side, the foot being held in position of marked equinus and slight varus; the left hand was held rigid, with the fingers extended, and the posterior muscles of the leg were in rigid contraction. The toes were flexed. The equinus could be overcome by force. There was slight atrophy of the muscles of the leg, but no paralysis. The left hand was in overextension, but there was no barrier to flexion. On October 28, the astragaloscaphoid articulation was exposed, and a wedge of bone and cartilage was taken from the adjacent surfaces. The flexor longus hallucis was exposed and cut, the proximal end was drawn down and passed through the scaphoid and sutured to itself and adjacent periosteum. The anterior tibial was cut and shortened, and a tenotomy of the tendo Achillis was made. The foot was put up in valgus position in plaster-of-Paris. On November 15, 1902, the hand was put up in plaster in a flexed position. On December 13, 1902, when the plaster was removed from the hand, there was marked flexion with slight flexion of the fingers. On January 21, 1903, it was noted that the hand was in extreme flexion. At present, the boy was apparently healthy and well, except for the deformity of his left extremities. His ability to walk, run and jump was limited only by the flexed position of the foot. He stood on either foot equally well. There was no paralysis of the muscles of the hip. The fingers, hand, forearm and arm were in a state of flexion, and the fingers and hand inclined to extreme flexion. This contracture could be overcome by the examiner. The knee-jerks were present on both sides and equal. There was no tenderness on pressure over the nerves, nor were there any sensory disturbances. There was no atrophy. There was partial reaction of degeneration in the muscles and nerves of the extensors of the forearm and foot, and of the peroneal muscles. There was none of the stigmata of hysteria, unless the contracture might be considered such. The case was diagnosticated as one of postdiphtheritic neuritis resulting in contracture and faulty attitude simulating hemiplegia. That there might be a hysterical element in it the speaker did not deny.

Dr. Joseph Fraenkel called attention to the curious and irregular behavior of the symptoms, and the absence of organic phenomena. The change in electrical reaction might be explained by the clonic state of the muscles. He was inclined to believe that this was a functional disorder.

Dr. Leszynsky said he had carefully examined this boy previously. According to the history that he had obtained, this peculiar attitude took place very rapidly. He had been impressed with the fact that, on entering the hospital, there was complete extension of the wrist and hand, and that after the hand had been placed in forcible flexion it had remained in that attitude, whereas formerly it had been in extension. He could find no evidence of involvement of the motor tract. He was inclined to look upon the case as of functional origin. According to the history, the extension took place quite early.

Dr. Sachs said that from a very large experience that he had had with infantile cerebral palsy he would not hesitate at all to say that this was a case of that kind. He pointed out that infantile cerebral palsy did occur after diphtheria. The boy had a hemiplegia which was entirely typical, and there were contractures just as in other cases of hemiplegia. There were athetoid movements of a most pronounced character. If, with the eyes closed, the boy was asked to grasp one's hand firmly with the well hand, the affected hand would at once go into the athetoid position. He could not recall having ever seen this condition in hysteria or neuritis. The leg had recovered very much more than the arm. He would not deny the possibility also of a neuritis, but the infantile palsy was a primary condition. He could not believe that any neuritis would give rise to the condition found in the leg. He would like to know if any one present had ever seen athetoid movements with peripheral neuritis. There was probably a postdiphtheritic encephalitis as the original cause.

Dr. C. L. Dana said he was very glad indeed to hear this positive opinion expressed because he had arrived at the same conclusion from a rather hasty examination of the child. To him a condition very characteristic of unilateral hemiplegia was present in the face.

Dr. Pearce Bailey said that the history of the case did not point very distinctly to a postdiphtheritic paresis, and such a distinctly hemiplegic character would be unusual for a neuritis. The weight of evidence seemed to point to a postdiphtheritic cerebral hemiplegia.

Dr. Collins said he did not know of any hemiplegia of organic origin that entirely spared the upper part of one extremity. There was some involvement of the face and an inability to wink with the left eye, but a large number of people were unable to wink with one or the other eye who had never had hemiplegia. The fact that one hand underwent extension while the other clutched did not seem to him to have any significance, because he had frequently tried this in persons who had no hemiplegia.

Two Cases of Congenital Cyst of the Fourth Ventricle Associated with Brain Tumor.—Dr. J. Ramsay Hunt reported these cases, presenting photographs and specimens. He said that both cases were examples of brain tumor in young subjects, occupying the left optic thalamus and the right crus cerebri, respectively. In addition, the fourth ventricle in both cases contained a large cyst, primarily attached to its floor, penetrating into the substance of the pons coursing through its

structures and terminating in immediate structural relation with the tumor. The clinical course of the disease in both cases was typical of brain tumor, and permitted the correct localization of the growth. Antedating the symptoms of brain tumor no certain history of central symptoms or mental defect was obtainable. In the second case, the patient was said to have been subject to headaches with attacks of vertigo and nausea. The first patient was a boy of seven, who developed general symptoms of brain tumor with right hemiparesis and right hemiataxia. There was paralysis of the right side of the face with paresis of the left external rectus and with nystagmus. Hearing was impaired on the right. The second patient was a boy of seventeen, who, six weeks after a fall on the occiput developed the general and focal symptoms of brain tumor in the right crus cerebri. Weber's syndrome was present. On exposing the fourth ventricle, at the autopsy, a large cyst was found there in both cases, firmly attached to the floor of this ventricle. By serial sections he had demonstrated that in both cases the cyst dipped down in the pons, coursed forward and was in immediate structural relation with the tumor in both cases. There was nothing in the walls of these cysts to suggest a parasitic origin, while there was much to point to a congenital origin. The frequency of glioma in this locality was well known. The coexistence of a tumor formation still further supported the view already expressed. These cases were unique in his pathological experience, and he had been unable to find their counterpart in the literature.

Case of Primary Sclerosis of the Posterior Columns Followed by a Disseminated Softening of the Other White Columns.—Dr. Joseph Collins presented this report. The clinical picture, he said, was so typical that the diagnosis was made during life. The patient was a house-painter, forty-two years of age, whose only previous illness had been severe attacks of colic. There was no history of syphilis, gonorrhea, or the excessive use of alcohol. In 1900 he began to complain of trembling and stiffness of the hands, associated with intense paresthesia. Later on there was pain in the back. During the following year his principal complaints were manual paresthesia and general weakness. There was no desire for sexual intercourse. All this time he was under treatment for chronic lead poisoning. In January, 1902, he rapidly became paraplegic, and since then had been bedridden. He was admitted to the City Hospital in March, 1902, and when first examined by Dr. Collins, on April 11, the man appeared to be suffering from Bright's disease. He could move the lower extremities slowly; there were knee-jerks present on both sides. The Babinski reflex could also be elicited on both sides. Tactile sensibility was impaired over the lower extremities. Thermal sensibility was preserved, but was slow below the knee. Pain sensibility was preserved. Deep sensibility was lost. There was prompt response to the faradic current. The pupils were equal and responsive. Bed sores were developing over the sacrum. The blood examination showed a predominance of small mononuclear cells and there was only 65 per cent. of hemoglobin. On April 27 it was noted that there was complete flaccid paraplegia; the left lower extremity was edematous; there was incontinence of urine and feces. He refused to take food up to the time of his death. The autopsy was made twenty-four hours after death. The brain and spinal cord was prepared in the usual way, and showed two distinct sets of lesions, sclerosis and softening. The areas of softening appeared to be very recent. In general, they involved the columns of Burdock, the posterolateral portions of the crossed pyramidal tract and the cerebellar tract. The oblongata, pons and motor cortex were normal. The sclerosis appeared to be a primary one following pretty closely the system of fibers in Goll's tract. No thrombi or pathological changes of the blood vessels were found, and the blood examinations showed this fluid to be fairly normal. The genesis of the softening was still obscure.

Dr. C. L. Dana said that this description followed closely those of cases of combined degeneration of the spinal cord with terminal softening. He did not quite understand whether the reporter put his case in this group, yet, to his mind, the case corresponded very closely with typical cases of that kind, a considerable number of which it had been his fortune to observe. Sometimes these cases were associated with a pernicious anemia; sometimes there was a severe primary anemia, while at other times there was no anemia at all. It was unfortunate that neurologists had not as yet agreed upon a name for this affection. The most common name was combined degeneration of the spinal cord associated with toxic states. The pathological conditions reported in this paper were very similar to those already reported. It was only in the minority of cases that there were areas of terminal softening. He was not prepared to admit that there were two distinct processes going on in the spinal cord. The disease began slowly, affecting by preference spots in the posterior columns, and subsequently the lateral columns. If the patient's condition were bad at this time, an acute process developed, but probably essentially of the same nature. The etiology of the toxic condition was as yet unfortunately involved in obscurity.

Dr. Collins said that his case was reported as one of primary sclerosis of the columns of Goll, with secondary softening in the other white columns, the paper being entitled, "A Study of Subacute Sclerosis of the Spinal Cord of Toxic Origin." His case differed materially from those reported by Drs. Dana and Putnam in that the sclerosis was sharply and completely limited to the columns of Goll. In the other cases the sclerosis predominated in the posterior columns and in the crossed pyramidal tract, and this accorded in the main with the clinical history. The fact that his patient had suffered severely from lead poisoning and had subsequently developed a cachexia seemed to throw a little light on the etiology.

Lymphocytosis of the Cerebrospinal Fluid.—Dr. Joseph Fraenkel read a paper on this topic. He said that he had endeavored to study this subject in 47 cases, but in 14 of these the tappings had failed to give any cerebrospinal fluid. There were 7 cases of tabes, all of long duration, and all of these cases showed marked increase of lymphocytosis. Six out of the seven cases of multiple sclerosis showed lymphocytosis. The tapping was done upon the patient in the sitting posture, preferably between the third and fourth lumbar vertebræ, or at the level of the iliac crests. From 5 to 8 c.c. of the fluid were collected for each examination, and then centrifuged. The tappings were made under chloride of ethyl spray. In some of the cases headache and nausea followed lumbar puncture, but they were usually overcome by saline injections.

Dr. Sachs said that in the two cases in which lumbar puncture had been tried by him in order to distinguish between pseudotabes and tabes, the examination proved entirely negative and of no diagnostic value. Hitherto the reports on this subject had been discouraging because of their contradictions. Lumbar puncture should never be attempted whenever there was a possibility of the existence of a cerebellar neoplasm, as several instances of sudden death following this procedure in such cases had been reported.

Dr. Dana said he had made lumbar puncture now in 26 cases, 21 of which were successful. About 12 of these cases were cases of paresis in which it was desired to receive some diagnostic aid. In two the fluid was clear; in others there was a lymphocytosis. He had found the procedure helpful in diagnosticating certain acute cases coming into the insane pavilion. The procedure was easy after a little practice, and could be done almost painlessly by using thirty minims of a half-per-cent. solution of cocaine injected ten minutes before the tapping. The procedure had proved helpful in one or two cases of spinal trouble. He believed it was not only of value in diagnosis, but that it would prove useful in time in therapeutics. Lumbar puncture almost always caused headache or vertigo for a day or two, sometimes for a week, and often it was very distressing. He believed this could be avoided by removing only 4 c.c. of the fluid, a quantity sufficient for diagnostic purposes.

Delirium Grave; a Critical Study, with Report of a Case with Autopsy.—Dr. W. B. Pritchard presented this paper. He said that all authors agreed that the disease was very uncommon, and most writers agreed that it was chiefly found among women. The immediate exciting causes were apparently numerous and various. Typhus and typhoid fever, or other prolonged infections, might be followed by delirium grave. The clinical picture was quite distinct and constant. Following a sudden or prolonged strain, the patient developed a maniacal condition with violence and incoherence. Hallucinations and delusions appeared, usually related to the visual sense, and the temperature was usually raised from one to five degrees above the normal. Again and again transient remissions might occur, but they became less and less complete and less frequent. Emaciation was sometimes rapid, followed by exhaustion, coma and death in a short time. At least two fundamentally different diseased conditions had been confused—one obviously organic, inflammatory and due to toxins or trauma; the other giving chiefly negative pathological findings. He would suggest the use of the term delirium grave for this group, and the application of the terms "pseudo-delirium grave" or "acute febrile delirium" to the first group. Many cases of meningitis and of toxic encephalitis had been reported as delirium grave. In ordinary acute mania there was not the same tendency to rapid and fatal collapse, and the hallucinations and delusions were more systematized. The disease was of extremely grave prognosis, nearly all cases terminating fatally. Death usually occurred from exhaustion; those who escaped death passed into a condition of dementia. The case reported occurred in a woman of forty-three years, who had been subject to many and severe nervous strains. On December 12 she suddenly developed the most violent mania. The delirium and mania were only temporarily controlled by drugs, and she died on the sixteenth day. A noticeable peculiarity was an almost continuous expectoration. Incontinence of urine and feces developed a few days before death. The autopsy was made four hours after death by Drs. McPhee and Larkin. Sections were made from all the regions of the brain. No changes in the blood vessels were noted; the chief changes were eccentricity of the nuclei with ragged cell outlines and loss of chromatic bodies. In the cerebellum Perkins' cells were mere shadows. These lesions had been found in a great many other conditions.

Dr. Adolf Myer was of the opinion that acute grave delirium had, among alienists, much the same position that Landry's paralysis had among certain affections of the spinal cord. The delirium under discussion was uniform and unmistakable in that it could not be analyzed, owing to the excited condition of the patient. He had not yet met with a single case in which there had been reason to doubt the diagnosis of delirium grave. In some of these meningitis had only been discovered by microscopical examination; in others, pneumonia or some other condition had spoiled the purity of the clinical picture. He thought the majorty of alienists took a somewhat different position from Dr. Spitzka on this subject, believing it to be a peracute phase, but not a clinical entity.

Dr. Pritchard said that the object of his paper was to endeavor, if possible, to clear up the subject by separating the cases of meningitis, pneumonia and the like from true delirium grave, and emphasizing this differentiation by reporting a striking case coming under his own observation. He was of the opinion that the vast majority of alienists of to-day did recognize delirium grave as a clinical entity, although of obscure etiology.

SOCIETY OF THE ALUMNI OF CITY HOSPITAL.

One Hundred and Eleventh Regular Meeting, held January 13, 1904.

The President, Alexander Lyle, M.D., in the Chair.

Atrophy Testicle.—Dr. Walter S. Reynolds showed the case of a young man, aged twenty-five years, who presented the unusual complications of an atrophy of the testicle due to trauma received in boyhood on the one side and chronic epididymitis and orchitis on the other. The individual had led a life of a most promiscuous character, having had no less than five distinct attacks of gonorrhea in the past four years. These had all been treated by the usual methods of injection and internal medication. Nevertheless in the last two attacks a very violent epididymitis and prostatitis had developed. The special point of interest in this case lay in the question of the ability of the individual to procreate. It did not seem possible that he could have retained this power in view of the very extensive productive inflammations in and about the epididymis on the right side, while the left testicle had evidently been entirely destroyed by trauma years before.

Dr. Ralph Waldo said that the prevalence of cases similar to the one presented is the indirect cause of many married women visiting the gynecologist. He believes that fully 10 per cent. of all cases of sterility are due to the man. Some years ago he had a patient who contracted tuberculosis of one testicle. After its removal, his wife had a baby. Shortly after this, the other testicle was removed. Five or six years later, although there were no more children, their sexual relations were unchanged.

Dr. J. W. Draper Maury said that a series of experiments had recently been performed on dogs in which the severed vas deferens had been inserted into the body of the testicle, positive proof being afforded later that the spermatozoa were gaining access to the urethra in a normal way. The authors of these experiments, emboldened by their success on dogs, had successfully operated in the case of one man for the cure of sterility which had been proven present, not alone by absence of children, but by microscopical demonstration as well.

Supposed Ureteral Stone.—Dr. Ralph Waldo reported the history of this case. The classic symptoms of calculus were present, but when the abdomen was opened, the following conditions presented themselves: The kidney was bound down at its lower pole to the retroperitoneum. The upper pole had been forced in a rotary manner upward, so that the whole organ had

undergone axial transposition. The defect was remedied by traction and fixation of the organs in normal position. The symptoms, which had been very severe, vanished, and the man made an uninterrupted recovery.

Obscure Rectal Ulcer.—Dr. Carter S. Cole gave the history of an obscure rectal ulcer, the management of which had proven difficult and unsatisfactory. The patient was a woman who had been operated upon in Europe for hemorrhoids. There is no precise information as to what was done, but at the present time, 1½ inches from the surface there is a fine but strong annular contraction. About half an inch from the surface on the wall of the rectum is a small ulcer. This ulcer was not recognized by an eminent stomach specialist and a gynecologist, each of whom had had the patient under observation for many months. Not through any fault of theirs, but because of the diversity of the symptoms produced by the legion, did they fail. The ulcer is positively non-syphilitic. It has been cut out and the site covered with mucous membrane, but it has so far resisted all efforts to heal. It is non-malignant. Nutritive treatment applied directly to the ulcer has been partially successful. He asked for information.

Cerebral Hemorrhage.—Dr. William L. Stowell recited the history of an old woman who presented atypical symptoms of cerebral hemorrhage. She lay in a partial stupor, and at first presented sufficiently marked signs to warrant his diagnosing hemorrhage and giving an unfavorable prognosis. To his surprise, however, in the course of two days she had recovered from many of the symptoms so that his diagnosis seemed to be at fault. One interesting symptom was her inability or her unwillingness to swallow. It is difficult to ascribe this to hysteria in a sensible woman of eighty-eight years. Two days after this effort at recovery, she died.

Dr. Carter S. Cole believed that he had not infrequently seen similar cases and had always ascribed them to basilar endarteritis.

Dr. J. F. Terriberry took exception to Dr. Cole's statement that the condition was one of basilar endarteritis. He said that the more protean and exotic the symptoms, the higher in the cerebral arteries were the atheromatous changes. The difficulty in swallowing was probably mental. Miliary aneurisms are not infrequent in the striate artery. Any profound nuclear lesions give more permanent symptoms than those described by Dr. Stowell. In general, restoration of function means a lesion in the high and unsupported vessels of the brain. Charcot has described the condition. Some of the symptoms presented by these cases are purely mechanical, some are psychical.

Infantile Bronchitis.—Dr. E. Mather Sill presented this paper. He said that out of 1,000 cases of various diseases coming directly under his care at the dispensary in the last two months, 293, or nearly one-third, suffered from different forms of bronchitis. The greater part of this interesting paper was devoted to the methods of treatment employed by the author. He looks very favorably upon the inhalation of oxygen in cases of profound depression arising from involvement of the finer bronchial tubes. Dry cupping over the chest will often relieve the intense congestion of the subjacent parts and will limit the amount of secretion. Spirits of camphor in five-drop doses he has found to be a most excellent remedy. If the child is *in extremis*, the lungs having practically filled with their own secretions, occasionally an inversion of the little patient with the slapping over the buttock and back of the chest will give relief. The general practitioner cannot be too fully warned as to the great danger of routine treatment of these bronchitis cases, each one of which is deserving of very special study and individual treatment. In general, cough medicines designed to allay coughing are contraindicative in children unless their action be very carefully watched. Similarly, all expectorants, particularly the ammonium salts are to be avoided, many a child having been killed by their use. The treatment necessitates first an accurate diagnosis, which cannot be made without frequent examinations of the chest, and second, a recognition of the stage of the disease which is under the physician's care.

Dr. William L. Stowell, in opening the discussion, said that the subject was so old that but little could be added to it. Nevertheless it seemed to him that one point, at least, was of very great importance in determining the treatment of these cases, viz., the condition of nutrition of the patient. The well-fed child needs care and no medicine, the underfed needs support and stimulation of the most accurate kind. This eliminates the abortive treatment by aconite in the foundling. It is useful to remember that all cases bear oily preparations well, a mixture of castor oil, acacia and paregoric forming one of the best relaxing mixtures. The kettle is an invaluable aid in the case of robust children, unmedicated steam being equally good as medicated; fifteen minutes to the hour being none too much in most cases. Every child in the dry stage of bronchitis needs an abundance of moisture to promote ciliary action. This the steam helps, but it is equally important that there should be a copious supply of water from within. To this end the child must drink abundantly. He condemned the cotton batting jacket as useless and dirty, sheet lamb's wool being preferable. In children of resisting skins, where camphorated oil will not produce a good reaction, the oil of camphor can sometimes be used to advantage.

Dr. A. Rupp said that Dr. Sill had not given the attention to calomel in these cases which he thought it deserved. Small doses not only offset the constipation produced by cough mixture, but relieve the laryngeal irritation.

Dr. J. F. Connors urged very strongly the use of ipecac, calomel and castor oil, with a "one to four" mustard plaster, t.i.d. He would cut down the food to one-half or one-third. He rarely uses stimulants and prefers strophanthus when they are necessary.

Dr. A. A. Moore said that prevention should play an important part in the discussion of any paper on bronchitis. He advised that the child should be taken out of doors every day. Along the same lines, the late care of the child, particularly in poorly fed infants, is of ultra importance, and paramount among all drugs or foodstuffs as a preventive of pneumonia, is cod-liver oil.

Dr. Sill, in closing the discussion, denounced the use of proprietary preparations, admitted the importance of calomel and stated that he advised the use of "one to six" mustard plaster rather than "one to four" in tenement house children, because in these neglected cases much harm might be done by the stronger preparation.

Smokers' Ulcer of the Hard Palate.—Dr. Adolph Rupp presented this paper. He said that pathological conditions of the palate, both soft and hard, were not only not numerous, but extremely rare. The lesions which he was reporting had been entirely omitted from the literature on the subject. He presented the histories of the two following cases: *Case I.*—A clergyman, fifty years old, healthy and well-developed in all respects, but an inveterate pipe smoker, developed an ulcer on the roof of the mouth which his physician told him was an epithelioma. It was treated with the X-ray with indifferent success. The lesion was about a half an inch long and a little less in width opposite the second molar tooth on the right side. The border

was vascular and bled freely when touched. The floor was hard. When punctured it bled. There was occasional slight bleeding from this ulcer following swallowing. There was no pain. The patient stated that he had noticed similar ulcers during the past five or six years after excessive pipe smoking. These had previously healed without trouble. This one, however, refused to respond to treatment despite his having ceased smoking altogether. Dr. Delevan saw the ulcer and agreed with Dr. Rupp that it was non-malignant. *Case II.*—A healthy bricklayer, fifty-three years old, smoked a short clay pipe all day. The ulcer was on the roof of the hard palate above the right canine tooth. It was half the size of that in Case I, was quite circular, but the surrounding parts were less congested. The position of the ulcer seemed to have been determined by the difference in the length of the individual pipe stems and the weight of the pipe. The author believed it to be a simple chronic tobacco burn in each case. The treatment was hygienic and local. The teeth were put in order and menthol in absolute alcohol was applied every two hours. A cure resulted very promptly in each case.

Dr. Carter S. Cole, in opening the discussion of this paper, said that it was admittedly a unique condition. In the South many men smoke every day of their lives most of the day. In many of these persons, the end of the stem must come in contact with the roof of the mouth. He had heard of many temporary ulcerations in smokers' mouths, but these had always been near the roots of the teeth. One explanation of the rarity of these cases in medical literature may be due to the fact that they are probably recognized by the individual as caused by the pipe and such prompt healing resulting from abstinence, a physician is usually not called upon to treat the case. Certainly these lesions could not have been malignant or they would not have healed.

Dr. G. B. McAuliffe said that ulcers at the juncture of the soft and hard palate were not uncommon. They are obstinate to treat, many of them yielding only to nitric acid. Underlying these ulcerations there must be something besides tobacco. They are usually regarded as late specific manifestations.

Dr. H. Jarecky had never seen ulcers on the hard palate. Syphilis of the region is easily diagnosed. Tobacco smoke is usually considered to be germicidal. It is not easy, therefore, to understand how it should cause ulceration, unless it be by affecting nutritional disturbance.

Dr. Rupp, in closing, said the different brands of tobacco affect the mouth differently. This is particularly true of cigars. Havana cigars are said to produce carcinoma more frequently than others. Each man had used the same brand of tobacco. Syphilis and malignancy were both out of the question in each of his cases.

BOOK REVIEWS.

Western Surgical and Gynecological Association. Transactions of the Twelfth Annual Meeting, held at St. Joseph, Missouri, December 19 and 20, 1902. American Medical Association Press, Chicago.

The present volume of transactions of the Western Surgical and Gynecological Association is another evidence of what thoroughly good medical work is being done in every part of this country. Many of the papers in the present volume are thoroughly representative of up-to-date surgery. The article of Dr. C. H. Mayo, of Rochester, Minn., on Evolution in the Treatment of Cancer of the Rectum; that of Dr. H. C. Crowell, of Kansas City, Mo., on Carcinoma Uteri; of Dr. Byron B. Davis, on Chronic Pancreatitis and Pancreatic Cyst, and that of Alexander Hugh Ferguson, on A Case of End-to-End Anastomosis of the Popliteal Artery for Gunshot Injury, seem especially worthy of mention. The discussions of these important subjects are typical of the progressive, yet conservative, methods of our best Western surgeons.

Latin Grammar of Pharmacy and Medicine. By D. H. Robinson, Ph.D. Fourth edition. Revised by Hannah Oliver, A.M. P. Blakiston's Son & Co., Philadelphia.

For those students of pharmacy and medicine who, because of various reasons, have been deprived of an academic course in Latin, this work of Dr. Robinson's will prove particularly helpful. It is short, practical, well sifted and well worked out and there is enough good Latin in it to serve as a foundation never to be forgotten.

A Narrative of Medicine in America. By James Gregory Mumford, M.D., Assistant Visiting Surgeon to the Massachusetts General Hospital and Instructor in Surgery in the Harvard Medical School. J. B. Lippincott Company, Philadelphia and London.

This charming narrative is difficult to review, for one is so fascinated by the glimpses of the past, and so carried away by the personalities of the men who have made medicine a science in America that one forgets to pause and note, to jot and criticize, and when one starts to quote a passage that is particularly apt, one cannot refrain from taking whole pages.

The object of the author seems not to have been to rescue from oblivion by exhaustive mention, every medical man of note in America, but rather by describing dramatically the times and the scenes in which characteristic men moved, to give a series of mental pictures illustrating the growth of medicine in Colonial days, Revolutionary times, and through the nineteenth century. He stops, however, respectfully on the edge of the present, not caring to assume, we imagine, the delicate responsibility of grouping celebrities that are still living.

It was a genial conception, not to write only of the medical doings of each physician, but to show that part of his life in which he was soldier, philosopher or friend. In these days when every pamphlet of ours must be adorned on the front page with a triangular slab of fine printing, telling every medical society, hospital, clinic and laboratory that we belong to, we grow accustomed to diverting our personnel from our profession, and when we read a friend's obituary we can no more recognize him in it, than we would recognize the neighborliness of one of our own garden flowers, severed from its root, stripped of its foliage and flattened to show every separate petal in an Herbarium.

This book of Dr. Mumford's is no Hortus Siccus of the flower of the profession. It is somewhat a philosophical bit of history illustrated by men and events. It shows very clearly and chronologically just when and where and why the Art of Healing dallied by the way, was assailed by rogues, and rescued by heroes, and finally led triumphantly forward and honorably presented as the Science of Medicine.

It bears the same relation to other histories of medicine that John Fish's Beginnings of New England does to the text or reference book. It is full of facts, but perspectively grouped and invitingly presented. In short, it is the kind of book that a physician would rest himself with when he was tired, but would turn to for a reference or illustration when he felt fresh enough to wax eloquent over his profession.

THE MEDICAL NEWS.

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SPECIAL ARTICLE.

THE ADMINISTRATIVE CONTROL OF TUBERCULOSIS.

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WHEN we consider the transcendent importance to the human race of the observations of Koch on the etiology of tuberculosis, and the completeness of his demonstration of the communicable and preventable character of the disease, it seems difficult to understand the limited extent of the sanitary procedures since adopted for its restriction. The imperative demand for the enforcement of comprehensive measures for the prevention of tuberculosis should have been as evident to sanitarians twenty years ago as it is to-day. No facts have been added to our knowledge within this period which are really essential to the intelligent sanitary surveillance of this disease. The universal prevalence of the disease, its infectious and communicable character, its preventability and curability, all of these facts—the important ones bearing on the administrative control—are not of recent discovery. They have not been developed by the agitation of the past few years, but were as manifest to the student of this subject fifteen or twenty years ago as they are now. Very slowly has a partial comprehension of the tremendous significance of these simple well-known facts forced itself on the minds of the medical profession, the sanitary and civil authorities, and the people. But even now, only here and there throughout the civilized world have measures been put into effect looking to the administrative control of tuberculosis. Notwithstanding all that has been said and written, notwithstanding the popular education and agitation, notwithstanding the formation of antituberculosis societies and antituberculosis leagues, notwithstanding the organization of many associations for the erection of sanitoria, and the foundation of institutions for the study of tuberculosis, notwithstanding the measures adopted for the prevention of the disease in animals, still only a very small percentage of the governmental municipal and state sanitary authorities of this country, Great Britain and the Continent have adopted provisions which can be regarded as in any way comprehensive, or effective in dealing with this disease.

If we seek for an adequate explanation for this attitude, it is not after all difficult to find. In speaking of this matter several years ago, Koch said in substance to the writer, "the adoption in Germany of such measures as are already in force in New York City will not be possible until the generation of medical men now in control have passed away. Not until a younger generation has appeared, which has had a different scientific training, and holds views more in harmony with the known facts regarding the etiology of tuberculosis, will it be possible in my opinion to bring about an intelligent supervision of this disease."

The idea has been so firmly fixed in the minds of the authorities and of the medical profession, that administrative control applies only to the more readily communicable acute diseases, like smallpox, scarlet fever, diphtheria, etc., that the inclusion of tuberculosis with these diseases has seemed to them impracticable, and the enactment of suitable legislation conferring power on the authorities to deal with this disease in another way has either not been considered or has been regarded as impossible. In only a few instances have effective measures been adopted, and in these instances, as was the case in New York, the power has usually rested with the sanitary authorities themselves to determine what diseases should come under their surveillance, and under what conditions.

Notification is a necessary preliminary to any plan of supervision, and yet only five years ago a special commission of the Academy of Medicine of Paris reported against a proposition to place tuberculosis in the class of notifiable diseases. Two principal reasons were advanced against the proposition: First it was pointed out that notification involved the divulging of a medical secret, which would be harmful to the patient (this applies of course with equal force to the diseases usually called contagious); and it was furthermore insisted that as the public did not regard tuberculosis as being contagious, or in the same class with the contagious diseases, but considered the disease hereditary, the public would not accept such a legal enactment without protest and resistance. The second reason was regarded as more important and was in effect that in a family unwilling to follow instructions sanitary restrictions would be impossible, as an almost continuous intervention would be required on the part of the sanitary officers for months and years. The only efficient alternative in such cases, it was pointed out, would be the consignment of the consumptive to a hospital, a practice followed in Norway. The Commission concluded that compulsory notification must not be considered, at least at that time.

Sir Richard Thorne, the Medical Officer to the Local Government Board of Great Britain, in the Harben lecture in 1898 on "The Administrative Control of Tuberculosis," after a careful

consideration of the various problems presented under the English law relating to infectious diseases, pronounced definitely against this proposition, on the ground that the hardship to the individual, which would follow notification and the enforcement of proper regulations, would be so great as to render this measure unjustifiable. In the same year the Academy of Medicine of New York, through a special committee appointed to consider the regulations, which had then been adopted by the Department of Health of New York City regarding notification, declared it as its opinion that the procedure was at that time inexpedient and inadvisable. Every important medical society in New York City then expressed even more strongly, than the committee of the Academy the opinion that the action of the Health Board was unwise and unwarranted.

In the action of these and other societies and commissions, and in the opinions expressed by various authorities throughout the world, it has always been evident that they have been influenced by precedents as to the functions of the sanitary authorities, and have felt very strongly the striking difference between tuberculosis and the diseases, which had previously been subject to sanitary control. It has often been pointed out that the so-called contagious diseases are acute, and the whole history of even the most protracted case is comprised within a period of a few weeks, or at most a few months, whereas with tuberculosis, the infectious period usually extends not simply over a few months, but more frequently over several years, and it may comprise half a lifetime.

The contagious diseases usually entirely incapacitate the individual, during the early period at least, and the dangers of the transmission of the infection are so great and the evidence of it so immediate, that no questions can properly be raised as to the justification for proper isolation and supervision. On the contrary, all authorities agree that under proper conditions the consumptive is not necessarily a source of danger, even to his most intimate associates. He may be able to pursue his usual avocation for years. The danger of the transmission of the disease is much less evident, and the source of infection is much more difficult to trace.

The consideration of these and other important points of difference between tuberculosis and the contagious diseases has dominated the situation. It has seemed difficult for the medical or lay sanitary authorities to understand, that with the new knowledge afforded by the observation of Koch and others an entirely different sanitary problem was presented for their consideration, and that for its solution new methods must be adopted. Very gradually comprehension of this simple and apparently quite self-evident fact has forced itself upon them. It may be said, I think, to be now an almost universally accepted fact that some kind of action or supervision is justifiable and necessary, and the only difference of opinion is as to the extent of the measures which should be adopted and as to the manner of their enforcement.

It is my desire in this address to present for your consideration, what it seems to me these procedures should be, and also in part what they are now in New York City. I may say in passing that so long ago as 1887 I had the privilege, in conjunction with the other consulting pathologists to the Department of Health of New York City, of advocating the adoption in New York of measures almost as comprehensive as those now in force, but it was so evident at that time, that neither the medical profession nor the people of the City would approve these measures, that the Board of Health felt their immediate adoption in toto was inadvisable.

What measures then does the efficient administrative control of tuberculosis require?

1. The compulsory notification and registration of all cases is essential. The fundamental importance of this measure is so evident that its consideration seems hardly necessary. It must of course appear at once that unless there is a system of compulsory notification and registration, the enforcement of any uniform measures for prevention is impossible. Practical experience with this procedure has made it perfectly clear that the objections which have been urged against it are without force or foundation.

In New York City in 1893 a system of partially voluntary and partially compulsory notification was adopted. Public insitutions were required to report cases coming under their supervision; private physicians were requested to do this. Under this provision the Department of Health carried on this work for three and a half years, and then adopted in 1897 regulations requiring the notification of all cases. For a number of years, while continuous pressure was brought to enforce this provision, it was not strictly enforced, although more and more complete compliance with its requirements was each year attained.

It has already been said that as tuberculosis radically differs from the more readily communicable diseases usually called contagious, so the measures for the sanitary supervision of tuberculosis must differ from the measures adopted in this class of diseases. This should be the attitude of the health authorities always, in the enactment and enforcement of all regulations. The information contained in the reports of cases should be regarded as confidential information, and action should only be taken by the authorities in those instances, where the conditions require it.

The notification of a case of tuberculosis does not require any action on the part of the authorities, if it seems reasonable to assume that such action is unnecessary. The very fact that tuberculosis is notified by the attending physician as a communicable disease has the greatest educational value, and justifies the assumption in those instances, in which the case is under the supervision of a private physician, that reasonable and necessary precautions for the protection of others

TABLE SHOWING DEATH RATES FROM ALL CAUSES AND DEATH RATES FROM TUBERCULOUS DISEASES PER 1,000 POPULATION IN NEW YORK, LONDON, PARIS, BERLIN AND VIENNA, FROM 1884 TO 1903 INCLUSIVE.

	NEW YORK		LONDON		PARIS		BERLIN		VIENNA	
Year.	General death rates.	Tubercu. death rates.	General death rates.	Tubercu. death rates.	General death rates.	Tubercu death rates.	General death rates.	Tubercu. death rates.	General death rates.	Tubercu. death rates.
1884....	25.82	4.45	20.39	3.12	25.44	5.19	26.3	3.6	26.8	7.2
1885....	25 55	4.26	19.67	2.90	24.38	.....	24.4	3.6	28.5	7.2
1886....	25.99	4.42	19.89	2.93	25.25	5.56	25.6	3.4	26.6	7.0
1887....	20.32	4.06	19.53	2.71	23.92	5.15	21.8	3.1	25.8	6.4
1888....	23.39	3.99	18.42	2.54	22.92	4.93	20.3	3.1	25.2	6.2
1889....	25.32	3.86	17.47	2.56	23.78	5.11	23.0	3.3	24.5	5.8
1890....	24.87	3.97	20.98	2.94	23.70	5.26	21.5	3.0	24.4	5.8
1891....	26.31	3.56	21.11	2.81	22.45	5.13	20.8	2.9	25.0	5.7
1892....	25.95	3.55	20.31	2.68	23.24	4.54	19 9	2.6	24.9	5 5
1893....	25.30	3.51	20.83	2.65	22.25	4.92	21.0	2.7	24.0	5.1
1894....	22.76	3.16	17.80	2.43	21.32	5.10	17.6	2.5	23.2	5.0
1895....	23.14	3.35	19.8	2.50	22.3	5.0	20.0	2.6	23.3	5.3
1896....	21.84	3.11	18.8	2.40	20.1	4.8	18.1	2.5	22.3	4.9
1897....	20.03	2.98	18.1	2.46	18.6	4.6	17.7	2.5	20.9	4.7
1898....	20.46	2.99	18.7	2.48	19.7	4.79	17.3	2.4	20.1	4.3
1899....	19.81	3.08	19.8	2.55	21.5	5.12	18.7	2.6	20.9	4 7
1900....	21.04	3.01	18.6	2.42	22.1	5.46	19.0	2.67	21.0	4.76
1901....	20.66	2.89	17.1	2.34			18.0	2.52		
1902....	19.49	2.68					16.1	2.39		
1903....	19.10	2.79								

GREATER NEW YORK		
Year.	General death rates.	Tubercu. death rates.
1898....	20.26	2.69
1899....	19.47	2.70
1900....	20.57	2.80
1901....	20.00	2.65
1902....	18.75	2.45
1903....	18.18	2.49

will be taken. If, however, the consumptive has the disease in an infectious stage and is without a home, or is living in a lodging house, or in a poorly furnished room, or in a family in a tenement house, or is receiving charitable medical advice through some public institution, then all objection to the interference or the supervision of the authorities is removed, and in the interests of the public such interference and supervision become necessary. Such is the attitude which has been adopted in New York City. It is assumed and stated positively that in all instances where the consumptive is under the care of a private physican and the latter will undertake to give such instructions as are necessary to prevent the transmission of the disease to others, no further cognizance of the case will be taken by the health authorities after the registration.

The fact should be strongly emphasized again, that the mere fact of notification and registration has in itself a very powerful educational influence. During the year 1902 more than 16,000 cases were reported to the Department of Health in New York City, of which 4,200 were duplicates, and in 1903 more than 17,000 cases were reported.

2. To facilitate the early and definite diagnosis of all cases of pulmonary tuberculosis, the sanitary authorities should afford facilities for the free bacteriological examination of the sputum in all instances of suspected disease. In a large proportion of the cases of early disease the physical signs and the symptoms are not sufficiently definite to permit a positive diagnosis by the general practitioner. An expert may easily arrive at a positive conclusion, but the general practitioner remains in serious doubt. In the absence of a positive result from an examination of the sputum, the attending physician awaits the appearance of more definite signs, and thus too often loses most valuable time, for these more definite signs mean further extension of the disease in the lungs. In some institutions and with many physicians, the positive position is assumed that no case is to be regarded as tuberculosis of the lungs unless tubercle bacilli are found in the sputum. I need hardly point out how erroneous and dangerous is this opinion.

It is of course of vital importance that the diagnosis in every case should be made at the earliest possible moment. A large proportion of the medical profession, in the large cities particularly, have not the facilities, nor are they competent to make such bacteriological examinations. The Department of Health of New York City provided facilities for such examinations in 1894, early in the history of its attempt to exercise control over the disease, and this procedure has proved of very great value to the medical profession, to the sick, and to the authorities. Following the example of New York City, other sanitary authorities have adopted similar measures, and I think it is the general opinion now, that such free bacteriological examinations should be made by

the authorities, and that every convenience and facility for them should be afforded. It is a curious fact in this connection, that large numbers of physicians in private practice who are unwilling or reluctant to directly report cases of tuberculosis, without hesitation send specimens of sputum for examination, with all the facts in relation to the patient which are necessary for registration. It is only on this condition that the examinations are made. During the year 1903 more than 11,000 specimens of sputum were examined in the laboratories of the Department of Health. These specimens came almost entirely from physicians in private practice. There are about 200 depots in New York city where the outfits, blanks, etc., for the collection of specimens of sputum may be obtained and where the specimens may be left for the Department collectors.

3. *Educational Measures.*—It is difficult to overestimate the importance of the duties of the sanitary authorities in the education of the medical profession and of the people on the subject of tuberculosis. Circulars designed to reach different classes of the community and covering different phases of the subject should be widely distributed, and the public press should be utilized to the very largest extent in the diffusion of information. The circulars as issued should be given to the press for general publication. A very important function is performed in this connection by the various lay societies, associations, leagues, etc., organized for the prevention of this disease. By the means of circulars widely distributed through every possible channel, and general agitation in the lay press and numerous and repeated lectures before all classes of the community, a very broad dissemination of knowledge as to the nature of tuberculosis and the means to be adopted for its prevention may be attained. I need not further refer to this phase of the subject.

4. *The Visitation of Consumptives in Their Homes.*—An important part of the work of the authorities consists in the immediate visitation by a physician or trained nurse of every case of tuberculosis not under the care of a private physician or in a public institution as soon as it is reported. At these visits verbal instructions should be given, and printed circulars left for the information of the patient and the family. At the same time data should be gathered as to the history of the sick person and of the family, its social condition and financial income, the number of persons in the family and their wages; the number of cases of tuberculosis which have occurred, the probable source of infection in the individual; the sanitary condition of the premises, the amount of air space for each person, the character of the light and ventilation, the precautions being observed and the possible need of any further interference on the part of the authorities. In the course of these visits it becomes evident in many instances that a patient should be removed to a hospital or sent to a sanatorium outside of the city. In such instances, if possible, the patient should be induced by persuasion to avail himself or herself of such institutional care as seems desirable or available. If the patient persistently refuses institutional care, forcible removal must be resorted to in those instances in which the unsanitary conditions existing render it necessary.

5. The disinfection or renovation of rooms or apartments which have been vacated by consumptives either by death or removal. Trained medical inspectors should be sent whenever it comes to the knowledge of the authorities, that premises have been vacated by death or removal, and proper measures adopted to enforce disinfection of the premises by means of formaldehyde gas, or thorough renovation. In those instances in which the premises are dirty and filthy, and the walls and ceilings are in bad condition, renovation, to be performed by the owners, should be required. If necessary for this purpose, the apartments may be vacated, or if already vacant, the occupation by others must be prohibited until such renovation has been completed. Carpets, rugs, clothing, pillows and mattresses, and any bedding or other textile fabrics, which cannot be properly disinfected by formaldehyde, should be removed by the authorities, and subjected to steam disinfection. Disinfection should be carried out by the health authorities without cost to the occupants or owners, but the cost of renovation, when required, should be borne by the owner of the premises.

A serious difficulty exists in this connection because of the frequent changes of residence of some families containing consumptives; and as the families become constantly poorer on account of the financial loss and expense entailed by the illness, they move continually to a poorer and poorer class of tenements. It is often impossible to trace them, or to obtain information of their change of residence, so that proper disinfection of the apartments may be ensured. The owners of the property may of course be required to furnish information of the removal, but there is danger lest this course may eventually entail some hardship on the poor consumptive in rendering it more difficult for him to find lodgings. This is the most troublesome problem to solve which we have found in New York. I do not feel sure that eventually notification by the owner of the removal of a consumptive will not be necessary, as the only solution of this difficulty.

6. Provision should be made for making repeated visits to cases in tenement houses, when for any reason it has been undesirable or impossible to remove the patient to an institution. These revisits may usually be best made by trained nurses. In this way information may be gathered as to changes of residence, as to the efficiency of the precautions adopted by the consumptive, as to the changes in his physical condition or the financial resources of the family, and as to the necessity of any alteration required in the sanitary treatment of the case.

7. Suitable food, especially milk and eggs,

should be provided by the sanitary authorities or by other authorities having supervision of such affairs in those instances, in which the families are in such destitute circumstances, that proper or sufficient food cannot be obtained by them, and when the patient for any reason cannot be removed to an institution.

Some very difficult economic problems are presented in some of these cases. For example: A family consists of a mother with moderately advanced consumption and five small children; the father is dead; the income of the family from all sources is insufficient to maintain it properly and furnish the mother with suitable food. But the apartments are well ventilated and sufficiently commodious, they are clean and neat, and the mother makes every effort to obey every instruction and heed every suggestion. She insists on remaining with her children, and her presence is necessary to keep the family together. Undoubtedly the mother would be better off in an institution, and thus too the children would be removed to an institution for children, and would be better protected from the danger of tubercular infection. But then the children grow up as institutional children, which is most unfortunate, and, furthermore, there is no sufficient sanitary ground for the forcible removal of the mother. Under such conditions, for the present at least, I believe, the authorities should provide or see that there is provided, such food or other assistance as is required.

If, however, the apartments are dirty and not well kept, or are small, dark, and badly ventilated, or the instructions are not followed and proper precautions are not taken, then the family should be broken up, the mother should be removed to an institution, if necessary by force, and the children otherwise provided for.

No uniform regulations can be laid down for the disposition of such cases, but each one must be considered on its merits, and the ultimate decision in each instance determined after a careful consideration of all the facts.

The authorities should, however, recognize their responsibilities as to the provision in some instances of food, or other assistance, and should have means at their disposal for this purpose. If this assistance is dispensed by other authorities than the health authorities, it should be under the latter's direction and supervision.

8. The sanitary authorities should provide, or see that there are provided, and should supervise, three classes of institutions for consumptives:

Free Dispensaries.—In these free dispensaries medical treatment for ambulatory cases should be provided. These cases should be constantly under the supervision of the district physicians and nurses attached to the dispensary. Where necessary, not only medicines, but food, should be furnished free by the dispensary to the consumptive poor. The dispensaries should also act as clearing houses for consumptives, and should serve as places to which all institutional cases on their discharge from institutions and all poor cases receiving the care or assistance of charitable organizations should be referred for medical care. From this dispensary suitable cases should be referred to either a sanatorium or a hospital, as seems necessary.

Hospitals for the Care of Advanced Cases.—It is not necessary that all the hospitals for the care of advanced cases should be directly under the control of the sanitary authorities, although they should exercise a general supervision over these institutions. It is necessary, however, at least in a very large city, that the authorities should have control of at least one institution with adequate facilities for the care of certain varieties of advanced cases of the disease, which it may be necessary to forcibly remove to the institution and retain there against their will. These are of several types: First. Those which are discharged from other institutions, because they are from the institutional standpoint exceedingly undesirable patients, or because they have violated the regulations of the institution. A moment's consideration will show that the sanitary point of view and that of the authorities of an institution widely differ. In order to maintain the discipline of an institution cases which persistently violate its regulations must be dismissed. From the sanitary standpoint, these are of all cases those which it is specially important should be provided with institutional care. Homeless, friendless, dependent, dissipated and vicious consumptives are those, which are likely to be most dangerous to the community. If not cared for in an institution, they are wandering from place to place, living in lodging houses or sleeping in hallways or wherever cover can be found; negligent as to the disposal of their expectoration, and disseminating infection in every place which they visit. Such cases must be provided for by the sanitary authorities at any cost, and if necessary they must be removed by force to proper institutions and there detained.

Second.—Cases living in lodging houses, or those which are inmates of public institutions not having facilities for their care, who are unwilling to enter any of the institutions, which are available, must be provided for and must be in the same way removed, by force if necessary, and detained.

Third.—It not infrequently becomes necessary in a large city to remove from their homes, cases which are almost necessarily sources of danger to the other members of their family; in those instances in which the sanitary conditions are very unfavorable, when there is great poverty, destitution, or overcrowding, and when the patients themselves are unwilling to enter an institution, the health authorities must intervene and remove such patients by force and detain them.

Fourth.—There are numerous cases which have already been under the care of an institution, and which become for some reason dissatisfied with their care and are determined to return to their homes. In these instances when the family is unwilling or unable to provide properly for

them, the patients should be removed by the health authorities and retained under supervision.

It will be readily understood that the classes of cases, which have been referred to as necessarily coming under the supervision of the health authorities are generally very undesirable and difficult to control. Yet the experience of the Department of Health of New York has shown, that rarely is any real difficulty experienced in the management of these cases, if the accommodations which are provided and the food and care given are of a superior character. It will be readily understood, that the measures suggested here can only be taken, where the sanitary authorities have full power and control, and that patients can be retained only in institutions over which they have direct authority. So far as I am aware the forcible removal of tuberculous patients has not been attempted by any sanitary authorities excepting those in New York City.

Sanatoria.—The sanitary authorities should provide or have available, proper sanatoria in favorably situated country districts for the care of early and incipient cases. No further comments seem necessary on this phase of the subject. It is evident that as the authorities have to deal with both the prevention and care of tuberculosis, such institutions are imperatively demanded. As has often been pointed out, every early case removed to a sanatorium, not only removes the individual who may be for a long period a source of danger to others, but also affords the best chance for recovery. Such patients when cured and discharged from the sanatorium are educational factors of no small moment in the community.

9. The sanitary authorities should issue regulations applicable to public institutions as to the care of consumptives. The admission and treatment of such patients in the general wards of general hospitals should be prohibited, and all public institutions caring for such patients should be required to provide separate rooms or wards. These regulations should apply not only to general hospitals, but also to the hospitals for the insane, to penal institutions, homes, asylums, etc. Suitable regulations should be formulated in regard to cases occurring among the teachers or pupils in the public schools and as to employees in factories, workshops and mercantile establishments, and as to occupations of a nature which are likely to disseminate the disease.

10. The sanitary authorities should enact and enforce regulations prohibiting spitting in all kinds of public conveyances, such as street cars, steam railroad cars, ferry-boats, etc., and on the floors of public buildings and places of public assembly, such as ferry-houses, depots, etc., and in the halls of tenement houses, theaters, in factories, etc. Spitting on the sidewalks should also be prohibited.

The fundamental importance of the careless disposal of sputum in the causation both of pulmonary tuberculosis and the acute respiratory diseases has not been fully recognized, I believe. It seems to me that here is the keynote to the whole question of the prevention of the diseases of the respiratory organs. In various forms of pneumonia as well as in tuberculosis, the causative microorganisms are found in the secretions of the respiratory tract; and when these secretions are not properly destroyed at the time of their discharge from the body, they become more or less widely scattered, dried, pulverized and suspended in the air as dust. Practically all of the organisms causing these diseases belong to the class which do not find favorable conditions for their multiplication outside of the living body, and therefore when they are effective in the causation of disease, it is because they have been derived definitely from some other single case of disease. It is of vital importance in the propaganda for the prevention of tuberculosis and also of pneumonia, that we should educate all classes of the people to a recognition of and a belief in the fundamental importance of the proper disposal of the expectoration and should gradually inculcate the idea that the habit of spitting carelessly anywhere is not only filthy and indecent, but as in many instances to be regarded as almost criminal. When we have educated the mass of people up to this view, so that this habit of spitting will not be tolerated, the chief factor in the solution of the problem of the prevention of tuberculosis will, in my opinion, have been found.

A number of measures of minor importance in the surveillance of the tuberculous diseases have been in operation in New York City. Among these may be mentioned, the semi-annual census of the cases of pulmonary tuberculosis under treatment in public institutions in the city. It has also been the custom during the last two or three years to communicate with the attending physician in cases of tuberculosis, which have been reported through the sputum examination or directly, and to enquire whether the patient is still under treatment, and if so, whether improvement has taken place or not, and whether the physician has any objection to a visit being made to the patient if he or she is not at that time under his observation. If the physician replies that the patient has passed from his observation, and he has no objection to an investigation by the department, an effort is made to locate the patient and determine what the condition is.

Sanitary cuspidors are supplied by the department through trained nurses for the use of patients who are very poor in the tenement house districts, and large numbers of these cuspidors have also been supplied to various charitable societies, which have supervision of, or are extending help to cases of consumption in their homes.

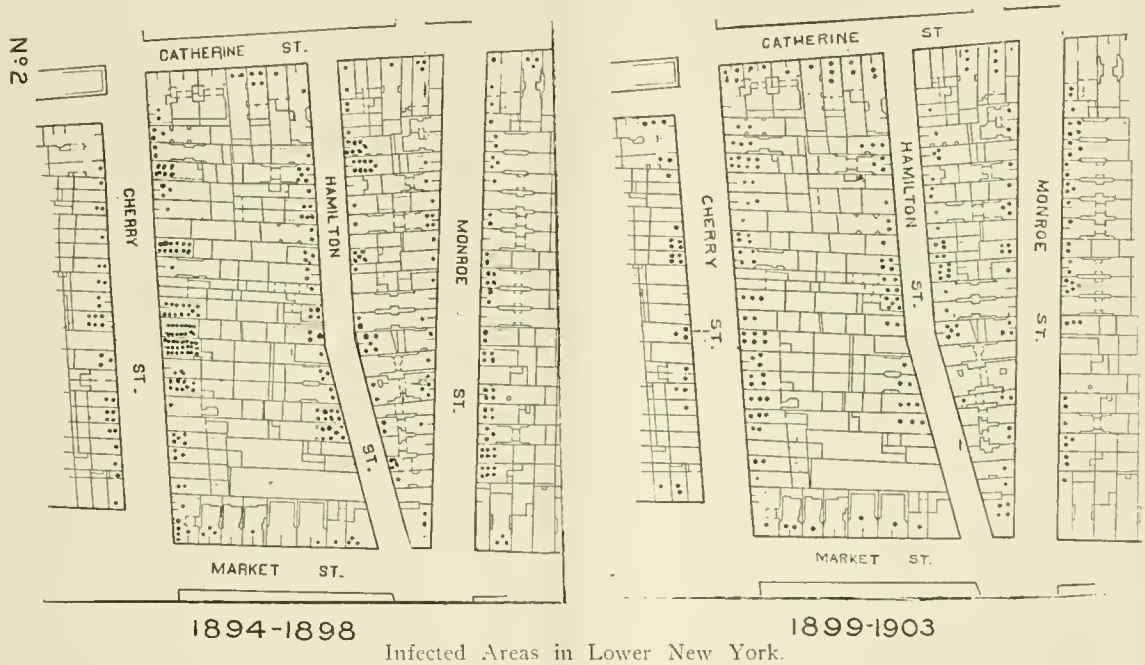
Large numbers of circulars of information have also been supplied to these societies for distribution, and similar circulars in various languages have been furnished to various labor unions for distribution among their members.

The inspectors of the Tenement House De-

partment in the course of their house to house inspection, report to the Department of Health any cases of apparent tuberculosis which they may find and these are investigated by the Department of Health.

In the very beginning of the work in New York, sectional maps of the Borough of Manhattan were prepared showing every house lot in the borough on a sufficiently large scale so that all cases of tuberculosis which came under the observation of the department and all deaths from this disease could be plotted, to show the topographical distribution of the disease. I have had some of these reproduced to show the extraordinary prevalence of the disease in some of the crowded tenement house districts.

Attempts are now being made to secure the condemnation by the city of several areas in the tenement house districts in which tuberculosis has been particularly prevalent.



Infected Areas in Lower New York.

One minor measure which has been found of a good deal of service in New York has been the house to house inspection in tenement house districts by women physicians in the search for unreported cases of tuberculosis. Quite a large number of such cases have been found in this way, especially among the foreign population. It is also of the greatest importance in this connection, that the trained nurses and medical inspectors should know the language of the people whom they are visiting. Great care has been taken, as far as it was possible under the civil service regulations, to obtain trained nurses and physicians who speak foreign languages. We have now engaged in this work, nurses who speak French, German, Yiddish, Russian, Italian and Polish.

These measures as detailed seem to me to include the more important provisions of a scheme for the efficient administrative control of tuberculosis. Several questions arise in this connection: (1) Is such a scheme feasible and practicable? (2) Are there serious objections to the enforcement of the measures proposed? (3) What results may be reasonably expected from the enforcement of such measures?

In answer to the first question—Is such a scheme of sanitary surveillance of tuberculosis feasible and practicable? I would say decidedly, it is. In its main and most important features such a plan has been in force in New York City for a number of years. The feasibility and the practicability have been conclusively demonstrated by an experience in the second largest city in the world. In only a few of the less important details is the general plan as now followed in New York wanting. Referring to these measures specifically, it may be said as to registration, that nearly 13,000 new cases were registered in the year 1903 in New York City; and over 11,000 specimens of sputum were examined. Large numbers of circulars of various kinds designed to reach different classes of the community are being and have been issued each year. During the last year over 100,000 "Circulars of Information for Consumptives and Those Living With Them" were issued by the Department of Health. These were printed in many different languages, for example: English, German, Italian, Yiddish, Chinese, Russian, Ruthenian, Polish, etc.

All cases of tuberculosis reported to the department not under the direct care of a private physician are regularly visited by medical inspectors and trained nurses, and the main facts in regard to the individual, family, sanitary conditions of the premises, etc., are gathered; instructions are given and circulars of information

left. All rooms or apartments which have been vacated by consumptives either by death or removal, so far as the department can obtain such information, are either immediately disinfected, or renovation is ordered and their occupation by others prohibited until the orders are complied with. Carpets, rugs, pillows, mattresses, etc., are removed by the department, disinfected by steam, and returned. Provision is made for continuous supervision of such cases as remain in tenement houses and require such supervision, through trained nurses and medical inspectors.

A special dispensary for the treatment of consumptives has been provided and is just about to be opened by the Department of Health, where it is proposed that treatment, medicines and necessary food shall be furnished free of charge. A series of pavilions have been opened by the Department of Health for the care of those, whom it is necessary to remove by force and detain, such as the undesirable and insubordinate cases discharged from other institutions, and also homeless, friendless and vicious cases.

The Department of Health has appealed to the city authorities for funds for the erection of a suitable sanatorium outside of New York City for the care of incipient cases among the poor, and there is every reason to believe that funds will soon be forthcominig for this purpose.

Regulations have been enacted relating to careless expectoration, and to a considerable extent have been enforced in public conveyances. Regulations prohibiting spitting on sidewalks, in the public halls of public buildings, tenement houses, etc., have not as yet been enforced, although it is proposed to soon adopt more active steps in this direction.

The Department of Health of New York City has not as yet undertaken to provide food or assistance to the consumptive poor living at home, where for any reason they cannot or should not be removed, neither has it undertaken to provide full regulations for the supervision of such cases in public institutions, in the public schools and as regards employees in factories, and occupations in which consumptives are likely to be a source of danger.

Excepting in these respects, the scheme as presented is practically in force now in New York City, the extent and the strictness of the supervision having each year during the last ten years been materially increased. What, therefore, is practicable and feasible in New York should be practicable and feasible in cities of smaller size, and it should be possible to enforce more readily and more satisfactorily similar regulations in them.

As to the second question—Are there serious objections to the enforcement of such a scheme, or are the objections valid which have been urged by some authorities? the reply to this is decidedly in the negative. Very great opposition met the proposition of the Department of Health to undertake this work in the beginning and many difficulties were encountered in the early years owing to this opposition. But experience has shown that the obstacles are largely imaginary; that the harmful results which were predicted as certain to follow, have failed to materialize. Practically no serious difficulties are encountered in carrying on the work. I would say that the difficulties with reference to the work of the department in New York in relation to tuberculosis are really less serious than those encountered in connection with the contagious diseases. There has been hearty approval by the majority of the medical profession, and acquiescence by the remainder.

In answer to the third question—What may be reasonably expected from the enforcement of such measures? we find again an answer in the experience of New York. There has been a more rapid fall in the tuberculous death rate in New York City, than in any great city in the world, and this notwithstanding the fact that the conditions in many respects are much more unfavorable, because of the very dense population in the great tenement house districts of the city and the large element of foreign-born population. It should be remembered that in no city of the world is there such a density of population as exists in many of the wards of the Borough of Manhattan. In numerous districts on the East Side the population varies from 600 to 800 people to the acre, whereas the most densely populated districts of Paris, London, Vienna and Prague have only 400, or less persons to the acre. When this fact is kept in mind, the difficulty in reaching the large foreign born element of the population, which speak their native tongue and retain their native customs will be appreciated.

During the last ten years there has been a decrease of 40 per cent. in the death rate in children under fifteen years from pulmonary tuberculosis and tuberculous meningitis, these being the two forms of tuberculous disease in which an approximately accurate diagnosis is likely to be made. It is precisely in this, the youngest element of the population, that one would first look for definite results from the enforcement of measures for the restriction of this disease. There has also been a decrease in the total tuberculous death rate between 1887 and 1902—a period of sixteen years—of 40 per cent.

A considerable fall in the death rate from tuberculosis has been noted in various countries and cities and it has been maintained and apparently shown, that the decrease was only in small part a real decrease and was accompanied by an almost equal increase in the death rate from the acute pulmonary diseases, notably pneumonia. The claim has been made that there has been simply a substitution in the death returns of pneumonia for tuberculosis. Very great care has been taken in New York City to investigate this phase of the problem and it may be said in the first place, that no corresponding increase has taken place in the death rate from the acute pulmonary diseases. A small increase has occurred since the first great grip epidemic in 1890, but this increase amounts

to only about 10 per cent., and is, I believe, undoubtedly due to the influence of grip in increasing the death rate from the acute pulmonary diseases.

During the last three or four years, at intervals, all of the pneumonia deaths have been compared with the index of tuberculosis cases reported, to determine whether any cases reported as tuberculosis were subsequently returned as having died from pneumonia. This investigation showed a very small number of cases of this kind, not exceeding three or four a week in the Boroughs of Manhattan and the Bronx and subsequent investigation in these, in the majority of instances showed that a reasonable doubt existed as to whether they were tuberculous originally or whether tuberculosis was at all a factor in the causation of death. In addition to this, during the last three or four months, especial detailed investigation has been made of all the deaths reported from pneumonia, occurring in persons over five years of age and not reported by large public institutions. The latter were excluded because it seemed fair to assume that the reports of death from large public institutions could be relied upon as accurate. Some hundreds of deaths of this sort have been investigated, to determine whether the history of the disease as given by the family and the attending physician justified the assumption that death was really due to tuberculosis and not due to pneumonia. The results of these investigations have again shown that in a surprisingly small number of them was there any real reason for assuming that tuberculosis was a factor in the causation of death.

The investigation of these pneumonia deaths is still being continued and in all instances, where the facts justify the assumption that death was due to tuberculosis, the death records are correspondingly changed. As further investigation has shown that nearly 90 per cent. of the deaths returned as due to tuberculosis have been previously reported to the department as suffering from tuberculosis, the conclusion seems to be thoroughly substantiated that the decrease in the deaths from tuberculosis is a real one and not in any material respect merely apparent.

I do not at all intend to indicate that the whole of the reduction in the death rate from tuberculosis in New York City has been the result of the measures directed especially against this disease, for many other factors have undoubtedly contributed to it, but I do believe that the very great and rapid fall in the tuberculous death rate is the direct result of the application of these measures; and I fully believe that the next fifteen years will see a reduction quite equal to that which has already taken place.

If we accept at all the necessary deductions of our scientific convictions in relation to tuberculosis, there can be no escape from the conclusion that tuberculosis is of all the important infectious diseases with which we have to deal, certainly the most preventable. I am not only prepared to accept fully the deductions from the known facts in regard to this disease as to the possibilities in its prevention, but would regard the experience of New York City as furnishing conclusive proof of the truth of this conclusion.

This is the great urgent sanitary problem of the new century. In no other direction can such large results be achieved so certainly and at such relatively small cost. The time is not far distant when those States and municipalities, which have not adopted a comprehensive plan for dealing with tuberculosis will be regarded as almost criminally negligent in their administration of sanitary affairs and inexcusably blind to their own best economic interests.

ORIGINAL ARTICLES.

HOUSE INFECTION OF TUBERCULOSIS.

BY LAWRENCE F. FLICK, M.D.,
OF PHILADELPHIA.

The kaleidoscopic phenomena of this earth, as we see them around us, are the result of a continuous alternation of life and death. In this beautiful panorama death is as necessary as life. Something is always dying that something else may live. Inorganic matter continuously is being changed into organic matter and organic matter into inorganic. For changing organic matter into inorganic matter God has created the microorganic world.

A microorganism which perhaps has slipped away from its natural place in organic nature and in consequence has done much damage to man is the tubercle bacillus. In the great division of organic matter it generally is credited to the vegetable kingdom. In a classification of microorganisms it is technically known as a facultative saprophite. By this is meant that ordinarily it gets its living as a parasite on some higher organism but that it may subsist on dead organic matter as a saprophite. In a subclassification of microorganisms it is known as a faculative aerobic parasite. By this is meant that ordinarily it grows in a tissue from which air is excluded but that it may grow in some substances, under certain conditions, in the presence of air.

When the tubercle bacillus grows in the tissues of a human being or of an animal it gives rise to a condition which has forcibly arrested the attention of man because of the suffering, sorrow, and misery which accompany it and follow in its wake. In the early history of medicine this condition was named phthisis and consumption. In more recent times it has been divided into two epochs; the earlier being called tuberculosis and the later consumption. In earlier times, too, the condition was viewed by mankind generally as a providential visitation, the punishment for sin, touching not only the immediate offender but reaching the offspring to the third and fourth generation. Science has demonstrated that it is a mere episode in nature subject to natural laws and absolutely under the control of man's will.

Man is interested in tuberculosis because it is a disease. The same processes and phenomena in other fields of nature give pleasure to man but here they give discomfort and are followed by sorrow and misery, because man himself is the field of operation. The word disease means want of ease. Quite naturally man has given much thought to how to avoid getting tuberculosis and how to get rid of it when it afflicts him. By reason of his superior intelligence, man has always been able to control his organic foes so far as visible objects are concerned, but in his fight against the microorganic world he is confronted with a much more serious problem. Much has been done, however, to throw light upon this newly discovered enemy and already it is demonstrated that man need no longer get tuberculosis and that if he is so unfortunate as to get it he need not die of it. Unfortunately the knowledge which makes this new dispensation possible is still in the hands of a few.

All diseases which are caused by microorganisms are communicable. This is a self-evident proposition. Whatever is living can only come from a parent and phenomena which are due to the growth and development of living organisms cannot arise except by reason of the growth and development of these organisms. There is a difference, however, in the manner in which parasitic microorganisms are conveyed from one person to another. Some are conveyed through the instrumentality of insects, some by means of water, and others by contact, direct or indirect. Some parasites have two kinds of hosts, a major and a minor host: some can reproduce themselves outside of a host; and others always remain dormant when out of the host. Parasites which have two hosts and parasites which can reproduce themselves outside of a host may be conveyed from one person to another over long distances, while parasites which are conveyed by contact can only be conveyed within a limited circumscribed environment. The yellow fever parasite, for instance, is conveyed through the mosquito; the typhoid fever parasite through water; and the tubercle bacillus by contact.

All diseases which are conveyed by contact are termed contagious. Contagious diseases are not necessarily alike, however. There may be a great difference in the intensity of contagion. The acute contagious diseases are much more intensely contagious than the chronic contagious diseases. In principle the contagion of all is the same, but in practice the method differs widely. Smallpox, measles, and scarlet fever, for instance, are contagious in exactly the same sense as tuberculosis, so far as the principle is concerned, that is, they are conveyed by contact, but the intensity of the contagion is so much greater with them than with tuberculosis that practical measures for the prevention of the former would in no sense apply to the latter. Smallpox, measles, and scarlet fever affect the whole body and contagion is rapidly given off from the entire body; tuberculosis is a local disease and contagion is given off from one or two points only. In smallpox, measles, and scarlet fever the matter which carries the microorganisms may be invisible; in tuberculosis it always is gross and easily seen. In smallpox, measles, and scarlet fever places and things soon become intensely contaminated: in tuberculosis it takes a long time to produce such a result. Intimate association, therefore, with a person suffering from smallpox, measles, and scarlet fever without contracting the disease is impossible unless the person thus exposed has an immunity from vaccination or previous attack, while intimate association with a consumptive without contracting the disease is quite feasible.

The contagion of tuberculosis, indeed, is of a kind by itself. It differs somewhat from the contagion of every other disease of which we have knowledge. It is so unique that writers have had some difficulty in finding an epithet descriptive of it. This is the reason why many writers object to calling tuberculosis contagious. Some would have us call it communicable, but this term is too generic. Others have suggested the epithet infectious for it, and this does not fit at all because it has a specific meaning which only applies to such diseases as malaria and yellow fever.

The most striking feature about the communicability of tuberculosis is that it depends almost entirely upon the house. An enclosure of some kind is so necessary for the conveyance of the disease from one person to another that contagion is impracticable without it. It is therefore with good reason that we use the phrase house infection of tuberculosis, when we speak of the practical manner in which the disease is spread in a community. The word infection, of course, is used in the broad sense of conveyance and the word house in the broad sense of an enclosure. The phrase tells pretty nearly the whole story of the communicability of tuberculosis and covers the entire proceeding from the beginning to the end,—garnering the seed, preparing the soil, implantation, rearing the tender plant, nurturing the full-grown shoot, maturing and harvesting.

The house is the depository of the tubercle bacillus outside of its host. Were it not for the house, the tubercle bacillus would soon have to perish from the face of the earth. It could not be preserved. Sunlight, air, and water are its natural enemies. The water dissolves it out of its caché and the sunlight and air destroy it. How long tuberculous matter may remain vital in the open air has not been definitely determined, but all agree that the time is very short. Even when the bacilli in such matter are not killed they are weakened so that they will not readily take root when planted. In the house, on the contrary, tuberculous matter may remain vital for a long time because it becomes dry and the broken-down tissue serves as a caché for the bacilli. Even when the matter becomes finely

pulverized, so that the bacilli no longer have so much protection, it remains vital for a long time because the sun and air cannot get at it.

Ordinarily the tubercle bacillus is dependent upon other microorganisms for its exit from its host. These are the streptococcus and the staphylococcus. They are pus-producing organisms and are very adept at destroying tissue. When they join forces with the tubercle bacillus they kill and soften the tissue which has been invaded by the tubercle bacillus and then nature casts it out. A double purpose is served in this way, the tubercle bacillus is helped out of its host and is given a protective covering toward preservation while out of the host. The broken-down tissue which is thrown out forms the protective covering.

In the transition of the tubercle bacillus from one host to another we have a beautiful illustration of nature's jealous care of every form of life. The tubercle bacillus is a motionless helpless microorganism, which can grow and reproduce itself only under certain conditions, in a definite soil, and which requires during the interim between its exit from one host and its entrance into another, special protection, and, for admission into a new host, special opportunities. These are secured for it indirectly through its toxin and the toxins of its associates. By sensations set up in the nervous system, it lures its victim into the very place where exist the best conditions for the preservation of its species, and the best opportunities of finding a new host. Consumption is the autumn of tuberculosis, the blossom grown into ripe fruit. When it comes on the victim, by reason of his chilliness, malaise, and general feeling of helplessness, seeks shelter in some enclosure and is deluded with the idea that the farther he can get away from sunshine and fresh air the better are his chances of recovery. The house thus becomes the harvest field of the ripe tubercle bacillus and the seed quite naturally falls into the very place which by nature is intended for its depository.

The house also prepares soil for the tubercle bacillus. We have every reason to believe that the bacillus cannot get a foothold in perfectly healthy, normal tissue. It is quite likely, indeed, that primordially the tubercle bacillus was a saprophite only and that its function in the world was to change dead organic matter into inorganic matter. It is easy to conceive how gradually it may have evolved into a parasite by growing on tissue, which while not dead was much debased. At any rate, even at the present time it does not seem to be able to invade tissue until the tissue has been injured in some way either by malnutrition, by traumatism, or through the agency of some other microorganism. Malnutrition is one of the most common predisposing causes of tuberculosis.

The physical life of man and animals is a chemical process. There is a combination of certain elements through the instrumentality of a living cell with evolvement of beings endowed with life. Food, air, and water are the substances used in the process. In proportion as these substances are at hand in proper quantities the being evolved is a healthy one; and in proportion as any of the substances are deficient or defective the being is an unhealthy one. Of the three substances required in this chemical process, air is perhaps the most important, and certainly the most necessary. Life may be maintained for some days without food and water, but for a few minutes only without air. The same is true of health. A person may keep fair health on a stinted supply of food and water for a long time but soon succumbs to a stinted supply of air. This probably is due to the fact that air plays a double rôle in health. It not only carries in oxygen for chemical purposes but it carries out poisonous products of chemical action. It is believed by some that rebreathed air produces soil for the tubercle bacillus more through poisonous products of combustion which are disseminated in the air than by reason of deficiency of oxygen. Probably it does it by both. At any rate, housed human beings and animals are very prone to tuberculosis. Deficiency of oxygen certainly leads to malnutrition. Too much food and too little air not only lead to defective metabolism, but throw upon the organs of the body poisonous products which must be gotten rid of to the detriment of the whole system.

Implantation of the tubercle bacillus is greatly facilitated by the house. For implantation prolonged intimate contact with a person, place or thing which has been intensely contaminated with tuberculous matter is necessary. The mere presence of a few tubercle bacilli is not sufficient. Everybody has some resisting power to tuberculosis and with everyone there is a minimal dose which will give an implantation. No doubt this dose differs with different people, but the resisting power exists to some extent in everyone. Even in inoculation experiments on animals a minimal dose has been found below which injections prove negative. This minimal dose, in a sense, measures the individual's fighting capacity against the disease. So long as the minimal dose is not reached an implantation cannot take place. Frequent warfare against a dose below the minimal dose increases the resisting power of an individual and raises the minimal dose. With animals the minimal dose which can give an implantation gradually can be increased until almost complete immunity has been established.

Experiments upon animals have been made by inoculation. It is quite probable that by the natural mode of entrance of the tubercle bacillus into the system the minimal dose is larger than by inoculation. The natural mode of entrance is by the alimentary canal or the respiratory tract. At both of these ports of entry there is strong opposition to admission. The gastric juice has some germicidal powers and all

along the respiratory tract there are devices for keeping out microorganisms. Beyond the ports of entry lie the lymphatics and the lymphatic glands and beyond these the phagocytic bodies of the blood, all of which wage war against microorganisms that may pass the ports of entry. From what has been done experimentally on animals and from what we have been able to observe clinically on man we have good reason to believe that the minimal dose of tubercle bacilli necessary for an implantation by the natural mode of entrance is quite large. This is not a mere speculation either. Out of every five people who are intimately exposed to the contagion of tuberculosis for a long period of time under the most favorable conditions for implantation only one person develops the disease. This shows that implantation is exceedingly difficult even under most favorable circumstances.

An enclosure is the one place in which contamination with tuberculous matter can become sufficiently intense to create an environment capable of overcoming the resisting power of man and producing an implantation. It is only in a house that vital tuberculous matter can accumulate. In the open air, water, sunlight, and air devitalize it nearly as rapidly as it is given off. Tuberculous matter ejected in a house, unless immediately devitalized artificially, dries and is distributed about in particles varying in size from big chunks to impalpable dust. In these particles the bacilli are cachéd and preserved. Gradually all the particles are reduced to dust either by trituration, oxidation, or the action of saprophites. This tubercle-laden dust settles on the walls, on furniture, and on everything in the enclosure. In the course of time there is quite an accumulation of vital tuberculous matter in such an enclosure and every time the air is disturbed tubercle-laden dust is set in motion. Here then finally is an environment capable of giving an implantation of tuberculosis. Occupancy of such a room means constant inhalation and frequent deglutition of tuberculous matter. Tubercle bacilli continuously find their way into the system and it is only a question of time when more have gained entrance than can be successfully withstood by the guards and disease fighters of the body. The result is implantation of tuberculosis.

The kind of house which offers the best environments for implantation of the tubercle bacillus is first the home, and second the workshop. The home, of all places, is the most prolific of new implantations of tuberculosis. It was on this account that in bygone days tuberculosis earned for itself the reputation of being an inherited disease. Tuberculosis is a family disease. It can most easily be implanted around the hearthstone. It follows the family tree in its distribution and when it once gets into a family it follows that family in all directions until it either has exterminated the family or has exhausted the soil and has made what is left of the family immune. The part of the home in which implantations most frequently take place is the bedroom and next to the bedroom, the dining room. The bedroom usually is the place where the victim of tuberculosis spends his last weeks or months, a period during which the disease is most intensely contagious. Among the poor, the dining room often is used as a bunking place for the stricken one until a day or two before death. Under such circumstances the dining room becomes very much contaminated, and becomes a prolific source of new implantation.

The workshop is a very common means of spreading tuberculosis. By workshop, of course, is meant any enclosure in which one or more people are employed. Tuberculosis is an extremely chronic disease and usually runs a long course, even in its contagious form, before its victim is incapaciated for his usual occupation. Some people work with a contagious form of tuberculosis for the greater part of a working lifetime, occasionally being thrown out of employment for a few weeks or months on account of an exacerbation and again returning with as much vigor as before. Unfortunately, habits of men and women in the matter of spitting, make it easy for a consumptive to contaminate his immediate environment in a shop if not the entire shop. One consumptive perhaps cannot contaminate a large shop so as to produce an infectious environment of the entire shop but he can produce an environment around his own stand capable of implanting the disease in one or more of those next to him, and before long he has associates in the task of polluting the shop. In a workshop in which a case of tuberculosis exists careful investigation will reveal the presence of other cases in various stages of the disease. Deaths will occur from such a shop at regular intervals for an indefinite period so long as the shop is permitted to remain contaminated.

Enclosures such as hotels, churches, public halls, places of amusement and public conveyances, in which people stop for a short time only are not apt to give rise to many implantations of tuberculosis for two reasons. First, a consumptive rarely remains in them long enough to produce a contagious environment capable of giving an implantation, and secondly, healthy people seldom remain in them long enough to get an implantation. There is some danger of contracting the disease in such places for people who are employed in them in the capacity of cleaners and caretakers; but for the casual visitor practically there is no danger.

Things which have been intensely contaminated by having been used for a long time by consumptives may give the disease to others when kept or used indoors. In the open air they may be harmless unless worn upon the person. Contaminated furniture, carpet, and hangings of various kinds when taken into a perfectly sterile house may themselves contaminate the house sufficiently to create an environment capable of implanting the disease. The tuberculous matter

adhering to such articles is distributed about and settles on walls and floors. In the open air, on the other hand, tubercle-laden dust from such articles is apt to be dispersed and scattered about over such a wide area as to make it impracticable for any one person to get enough of it to give rise to an implantation.

The house nurtures the tuberculous growth when an implantation has taken place. Mere implantation of the tubercle bacillus does not necessarily mean a development of a full-fledged tuberculosis. The disease always begins in a very small way and attracts practically no attention. The first crop develops and runs through its course and a second follows, perhaps, a little larger than the first. This is followed by a third and a fourth, each a little larger than the preceding one and thereafter another larger still, until finally so much tissue has been invaded and destroyed as to make death inevitable. At any time during the progress of the disease prior to the destruction of tissue essential to normal functions of the body the economy has within itself the power of throwing off the disease. Autopsies prove that this often is accomplished by nature, unaided by medicine. It probably would be accomplished in all cases were it not for the house.

In the beginning of the tuberculous process the tendency to recovery is so great that the slightest aid to nature may turn the tide toward recovery. The process by which recovery takes place probably is healthy metabolism, that is perfect change of food into tissue. Implantation has taken place because the individual temporarily has been a little below par as result of improper food, insufficient air, overwork, dissipation, an attack of some other disease, or some such matter, one or all. Under proper conditions the implantation is rooted up before it can grow into tuberculosis. All that may be needed is a little rest, a little extra food, and a little more fresh air. In some cases recovery might take place if a little rest could be had even without extra food and air; in others, if better food could be had even though no rest could be taken and the air supply could not be changed; but in all recovery would almost surely follow a life in the open air in spite of bad food supply and overwork. Life in the open air enables one to digest coarser food and do more work without fatigue than is possible indoors. This is probably due to the fact that in the open air the poisonous products of combustion are promptly removed from the system and thus are prevented from embarrassing the entire organization. To cure tuberculosis we must have perfect metabolism, and this we only can have when enough fresh air is taken into the system night and day to oxidize the food and cleanse the blood. Imperfect metabolism predisposes to tuberculosis by debasing the tissues and making soil for the tubercle bacillus.

House life undoubtedly plays an important rôle throughout the entire course of tuberculosis to its culmination in consumption and death. With every recurring crop of tubercle the organs of the body become more embarrassed and the economy is less able to carry on the warfare against the disease. When the disease is in the lungs, as it frequently is, the air supply grows less with each destruction of lung tissue. Fortunately nature has given all air-breathing creatures ample lung capacity, enough and to spare, so that a great deal of lung tissue may be destroyed without interfering with the functions of the body, provided the air supply is right. Under these circumstances other organs, no doubt, supplement the lungs in their functions of elimination. Everything hinges upon an ample supply of fresh air, however. When this is at hand healthy metabolism may be attained even when the disease is advanced and through this health may again be reached. Tuberculosis makes its progress because its victim is shut up in a house where he cannot get fresh air. Unfortunately for the poor an ample supply of fresh air is impossible. Their houses, their homes as well as their workshops, have been constructed on a mistaken idea that whatever shuts out air, heat, and cold is conducive to health. The large death rate from consumption really must be ascribed in a great measure to bad ventilation in home and workshop.

The last scene of conflict between the victim and his foe is the house. Tuberculosis develops into consumption because of the house. This does not mean that people could not get tuberculosis if they lived out of doors, for birds of the air and animals of the field get the disease. Tuberculosis, however, in itself would seldom prove fatal. Both animals and human beings may go through life with tuberculosis and reach old age without being seriously inconvenienced by it. Many animals and people do. Dr. Trudeau has shown by experiments on animals that life in the open air greatly retards the development of tuberculosis and promotes recovery. Rabbits which he inoculated and penned up died, while rabbits which he inoculated and permitted to run at large maintained good health, although they developed tuberculosis. In sanatoria where consumptives are made to live out of doors, wonderful improvement sets in even when the case is incurable. Frequently all the symptoms of consumption disappear and the patient becomes comfortable even when so much tissue has been destroyed that recovery is physically impossible. In other words even consumption in the open air loses all its most serious symptoms. The house makes and maintains consumption, and consumption kills.

Consumption may well be termed a house disease. Without the house it would not exist. It depends upon the house for its implantation, propagation and for evolution of all its phenomena. The house is the place where the tubercle bacillus lies dormant in wait for its new

host; it is the place where the new host gets his implantation; it is the place where the tuberculous subject gradually becomes a consumptive; and it is the place where the consumptive dies.

In studying the progress of civilization in the light of modern science one is struck with the egregious blunders into which man has been led by his desire for privacy and comfort. He has built his house to keep out his enemies, to protect himself from heat and cold and to screen himself from the curiosity of his neighbor. He has sought to make his home his castle but in reality he has made it the place wherein he courts death.

If man desires to free himself from the great white plague he will have to retrace his steps from some of what he considers advanced points of civilization. He will have to learn among other things that fresh air is God's greatest gift on earth and that whatever shuts out fresh air, shuts out health and happiness. In house infection he will find the key to the entire problem of stamping out tuberculosis.

CASE OF TETANY.*

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The patient is eleven months old, the second child of healthy parents, who do not at present and have not at any time suffered from any nervous trouble. The child was fed on mixed food, that is, in addition to the mother's milk she received cow's milk and, occasionally, food from the table. Patient had not as yet had any exanthematous disease, but contracted pertussis when two weeks old, which lasted until her sixth month. The child did not suffer in general health during that time. In the month of July she had diarrhea for a few days from which she made a complete recovery. The present illness began suddenly on September 15. The mother put the child to bed on the previous evening at the usual hour. She told me that before going to bed it was lively and playful, more so than usual, and slept the entire night without waking: in the morning when the mother looked at the child she noticed that it woke up with a start, its eyes became fixed and staring, and after a few seconds it began to cry. When the mother stepped to take the child in her arms, she noticed that it was rigid, "like a stick." A next door neighbor pronounced the child well: "She is only teething." Toward the evening, as the child grew worse, I was called in "to cut the baby's teeth."

I found the infant stretched out on a pillow, unable to move, and crying at the approach of any one, apparently afraid of being touched. Examination elicited the usual symptoms of tetany, which, in the main, are muscular rigidity and contractures, affecting first the upper and then the lower extremities. The fingers were flexed at the metacarpophalangeal joints. The phalangeal joints were extended, the thumb adducted and extended, and the hollow of the palm deepened; the wrist flexed to almost an acute angle, the elbow-joints rigid and flexed, the shoulder-joints, however, were not involved. Next to the hands the feet are the parts most often affected, as was the condition in this case. The thighs were adducted, there was in this case extreme extension of the ankle-joints, and the toes were flexed so that the plantar surfaces were more arched and deeper than in a normal state. The knee-joints were rigid but the hips were not involved. Pulse and respiration were rapid and temperature 102° F. It is characteristic of the disease that it is always bilateral, with symmetrical contractions, some time of variable intensity on either side.

Trousseau's sign, which is a constant pathognomonic symptom of the disease, may be elicited in the following manner: when an elastic band is applied around the arm thereby compressing the blood vessels and nerves supplying the parts, the hand will at once pass into a tetanic state. This is not due to mechanical pressure alone for the other side will also exhibit the same phenomena. The muscles of the face respond to mechanical irritation very readily. The etiology is obscure, age given by some authors as from six months to two years. Dr. Sachs, of New York, who made an extensive review of the literature of the entire subject, declares this affection as most frequent at the ages of sixteen and thirty-five years. Boys are more often affected than girls. Gastro-intestinal disorders seem to be the main etiological factors in the recorded cases, but in the present one the tetany seems to have been the symptom ushering in an acute bronchitis, which lasted four days and from which she made a complete recovery. Another case seen by me, where tetany was the ushering in symptom of lobar pneumonia, was in a child of eighteen months that died subsequently on the eighth day of the disease.

I would reasonably assume from the above two cases that tetany is not always a complication, as some authorities claim it to be, but that it may be the initial symptom of any of the acute febrile diseases, just as convulsions occur at the beginning of many ailments. It may also be a complication of the many exhaustive diseases, such as typhoid, summer diarrhea or bronchopneumonia. The treatment is purely symptomatic. If the cause is discovered such as intestinal toxemia, or tapeworm, it should be removed, if possible, by proper medication. For the rigidity, I know of nothing better than a warm bath.

Pain is relieved by applying cold to the joints involved and the internal administration of the bromides and antipyrin. In the usual case this is all that can be done. In those rare instances, however, where the respiratory muscles are affected, and life is threatened from asphyxia, chloroform inhalations should be given.

* Read before the Eastern Medical Society, September 7, 1903.

203 East Broadway.

TWO CASES OF SEVERE X-RAY NECROSIS, PRESENTING SOME UNUSUAL FEATURES.*

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DURING the past two years our attention has been forcibly attracted, and more or less exclusively occupied, by the gross, general, therapeutical influences of the X-ray. The present time, however, is bringing with it a demand for special knowledge concerning these influences, and their evolution, modus operandi and detail, constitute fruitful fields for future research. Clinical observation will designate the problems; physiology, pathology and physics must solve them. The cases following suggest some queries and food for thought in this connection.

Case I.—The first was observed upon a woman fifty years old, of the brunette type, who was under X-ray treatment for pseudoleucemia accompanied by a large accumulation of fluid in the abdomen. The glandular enlargements were very prominent in the abdominal cavity particularly on the left side, and in the cervical, axillary and inguinal regions. The X-ray applications were all made to the abdomen, the tube focused about two inches to the left of the median line, but so arranged that all of the regions affected received some of the radiance. No shields were used except over the face and only a thin towel was interposed between the skin and the source of light. The tubes used were of the German type with divided anodes, forced back a spark of from four to eight inches, and produced rays of high penetration; distance of anode from patient's skin, ten inches; time of exposure, fifteen minutes; exciting apparatus, twelve revolving 32-inch plate Morton-Wimshurst-Holtz influence machine for the first three months, and a sixteen revolving 32-inch plate machine of the same type thereafter.

From July 26, 1902 to December 4, 1902, she received 50 X-ray treatments, being an average of one every 2.6 days. From December 4, 1902 to April 3, 1903, she received 25 treatments, an average of one every 4.7 days, or about half as frequently as during the preceding period. At this time her disease had improved to such an extent that it was considered safe to interrupt the treatment for a while, which was done. During the period that she was under the above-described treatment the skin over the exposed region of the abdomen had repeatedly become heavily pigmented and peeled off exposing healthy pink skin underneath. Twice there appeared a slight erythema with itching and burning, which subsided completely in five or six days upon suspending the applications. As far as the effect of the X-ray was concerned everything seemed to have eventuated most happily up to that time.

I was asked to see her again April 30, and found her suffering severely with sharp cutting pains in the anterior abdominal wall and streaking up under the ribs nearly to the shoulders on both sides. The skin of the abdomen had been darkly pigmented but now a dusky redness showed through the brown, over an area of about six inches in the vertical by ten in the lateral diameters, and a very intense burning sensation was torturing the patient constantly. Various ointments and lotions were applied without securing relief, and it became necessary to resort to morphine in a day or two. The condition progressed from bad to worse, until May 13, at which time an area four inches in the vertical by eight in the lateral diameters presented the typical picture of white gangrene, the dead tissue being yellowish-white in color, of a tough and leathery consistence with the characteristic gangrenous odor. Severe shooting pains were present almost constantly and manipulation of the parts provoked paroxysms of the same lasting for several minutes. Pulse ran from 105 to 115 beats per minute, the temperature varied from 100° to 102° F. and the patient was unable to leave her bed because of the severe general prostration. Her appetite was excellent and continued so throughout the entire course of the illness.

From this time on the dressing consisted of irrigation with normal saline solution followed by a 10 per cent. aristol and lanolin ointment twice daily. At this time also the edges of the slough began to separate and this process progressed steadily until June 9, when it was completed by the exfoliation of the central mass which was three-quarters of an inch thick by actual measurement. Synchronously with the completion of the sloughing process was observed cessation of the sharp, shooting pains, and they did not recur. The edges of the ulcer had begun to heal as soon as the separation of the slough commenced but this process was very sluggish and unsatisfactory and on July 9, 1903, I commenced using the direct electrical current, negative polarity, 75 volts and 5 to 10 milliampères for ten minutes, applied through a bare metal electrode in direct contact with the ulcerating surface, three times weekly. This hastened the healing process very noticeably and the ulcer was completely covered with healthy skin by October 1, 1903.

By the middle of July the epithelial layers of skin covering the apparently healthy areas contiguous to the ulceration and which had been deeply tanned by the rays, had peeled off entirely, leaving exposed newly formed, epithelial layers, pink, soft, and entirely normal in appearance. Two weeks later this tissue had become pigmented and by the middle of September it was as deeply browned as was that which had exfoliated. At this time there was also observed, scattered over this newly-formed cuticle, 25 to 30

* Read at the Fourth Annual Convention of the American Roentgen Ray Society, at Philadelphia, Pa., December 9 and 10, 1903.

wartlike excrescences, varying in size from a mere point to five or six times as large as a pin head. In this connection I should like to call your attention to the fact that no exposures to X-rays had taken place for more than five months preceding, and that since the last exposure the epithelium which had borne the brunt of the treatments had completely exfoliated, its place having been taken by newly formed tissue, apparently unmodified in structure.

Early in September, or five months after the last X-ray treatment had been given, the skin began to break down at a point three inches to the left of the median line and the same distance above the superior border of the original area of ulceration, and spread over an area of three by five inches during the next month. This area became one of typical white gangrene almost at once but did not extend more than one-third of an inch in depth. The management used upon this spot consisted of saline irrigation twice daily, followed by dusting with a powder consisting of equal parts of anesthesine and talc, which controlled the pain perfectly. About half of the slough has now completely separated, leaving a healthy granulating surface, which is slowly healing. I shall apply the direct electrical current for its accelerating influence upon the reparative process as soon as the rest of the necrotic tissue has exfoliated.

The noticeable features about this case are as follow: (1) The depth to which the original necrotic process extended; (2) the "tanning" and excessive proliferation in spots, of the epithelium of the new skin that was exposed by the peeling of that which had been browned directly by the ray, which new epithelium had not been exposed to the ray and was apparently entirely normal in color and structure when it first developed; (3) the cessation of the pain as soon as the necrotic tissue had completely separated; (4) the favorable effect of the galvanic current in hastening the healing process after the necrotic tissue had sloughed off; (5) the appearance of an area of necrosis five months after the last X-ray application, in a region which had prevously exhibited no evidences that such injury had been inflcted; (6) the happy effect of the anesthesine and talc mixture in relieving the pain of this last mentioned ulceration.

Case II.—The second patient, a medium blonde with gray eyes and dark brown hair, aged forty-nine years, came to me for X-ray applications to an inoperable malignant process in the neighborhood of the left broad ligament accompanied by marked ascites, on January 27, 1902. From that date until April 4, 1903, she received 115 X-ray treatments, an average of one every 3.7 days. The technic was the same as had been used in connection with Case I, except that the twelve-plate static machine was used upon this patient for the first nine months. At this time her condition as regards improvement was such that it was considered safe to discontinue the treatment tentatively. While undergoing the treatment the skin over the exposed region had repeatedly become heavily pigmented and peeled off exposing underneath, soft, pink, new skin. Three times there had obtained slight erythema with itching and burning which had subsided kindly upon suspension of the treatments. When the final treatment was given on April 4, 1903, the skin was deeply tanned and felt to the touch dry and brawny, and this latter characteristic seemed to extend for some distance into the subcutaneous tissues.

There was nothing apparent in the condition to indicate that a dermatitis was about to manifest itself, not even an erythema, but there was present at this time a phenomenon that I had never before observed in this connection, consisting of a subcutaneous effusion of blood about as large as a nickel five-cent piece, two inches to the right of the median line and about an inch above the level of the pubis. This area was slightly depressed below the level of the surrounding tissue, was slightly sensitive to the touch, and had developed suddenly two or three days before.

The spot became more and more sensitive. In a few days sharp pains appeared in this region and streaking upward to the ribs, which increased in severity until by May 1 they had become pretty constant and so severe that the internal administration of opiates was demanded, and the area defined by the subcutaneous effusion of blood had become gangrenous. The body temperature ranged from 99.5° to 101° F. and pulse from 95 to 105 beats per minute. The necrotic area gradually increased in size until by the middle of May it was as large as a silver dollar. At this time another hemorrhagic effusion as large as a silver quarter of a dollar appeared on the left side of the median line which became necrotic about the first of June. By the first of July these areas had coalesced at their lower borders through an isthmus three-quarters of an inch in width, the necrosis having been preceded by little scattered subcutaneous effusions of blood as had been the case with the other lesions. The affected regions were covered by the same tough, malodorous, yellowish, fibrous tissue described in connection with Case I, and had at this time reached their maximum size, consisting of a circular spot on the left side two inches in diameter, and on the right side an irregular spot two inches in the vertical and three in the lateral diameters. As I have just stated these areas were connected at their lower borders by an isthmus of necrotic tissue three-quarters of an inch in breadth, which dimension subsequently increased to one and one-half inches.

By this time the epithelial layer of the skin covering the adjacent, apparently uninjured regions and which had been deeply tanned by the rays, had exfoliated and the newly formed tissue which took its place was normal, soft, and pink in structure and appearance. In a few days, although no exposure to X-rays had taken place, it became

harsh, dry, and profoundly erythematous with considerable itching, but showed no fresh pigment deposits, and has remained in that condition ever since.

The long-continued severe pain had greatly impaired the patient's general condition and she was admitted to the sanitarium, where she could be more efficiently treated, on July 8, 1903. To make a long story short, we ran through the list of pain-relieving applications, including the anesthesine and talc mixture, which, by the way, made the pain worse in this case, and none gave any satisfaction except the ice-cap placed over the ulceration, and an ointment consisting of lanolin with enough olive oil to soften it and ten per cent. of powdered opium. The application of this twice daily preceded by saline irrigation was the management finally adopted.

I used the galvanic current as with Case I, in the hope that it would hasten separation of the necrotic tissue but without result, and the necessary manipulation of the parts was so painful to the patient that the procedure was finally abandoned.

The sloughing of the necrotic tissue progressed very slowly and was not complete until early in October, but the disappearance of the last fragment was accompanied as in Case I, by the disappearance of the severe pains. The necrosis extended to the depth of about three-eighths of an inch and a healthy granulating surface was left which is healing very satisfactorily under applications of the direct electrical current, as described in connection with Case I, which I began using five weeks ago.

Early in October, or six months after the last X-ray treatment had been given, there appeared another slight subcutaneous hemorrhage the size of a dime, three inches to the left of the median line and two inches above the upper border of the original ulceration. Ten days after, the characteristic necrosis appeared which sloughed in two weeks, and the resulting ulceration was almost completely covered by healthy skin by the last of November. None of the severe pains accompanying the development of the other necrotic foci obtained with this one.

The noteworthy features about this case were as follow: (1) The constant appearance of a subcutaneous effusion of blood in the areas which subsequently became necrotic; (2) the spontaneous development of profound erythema and structural modification in the newly formed skin exposed by the exfoliation of that which had been browned by the direct agency of the rays; (3) the cessation of pain as soon as the necrotic tissue had completely separated, a feature also exhibited by Case I; (4) the apparent failure of the direct electrical current to accelerate the separation of the necrotic tissue, and its gratifying effect upon the reparative process after this tissue had sloughed; (5) the appearance of an area of necrosis six months after the last X-ray application, in a region which had previously exhibited no evidence that such injury had been inflicted; a feature also obtained in Case I; (6) the aggravation of the pain produced by the anesthesine and talc mixture.

Although neither of these cases presents a finally completed history, what has been observed to date is sufficient to shed some additional significant light upon the influences which the X-ray experts upon the tissues, and the management of the untoward results of these influences.

First, the belief, somewhat extensively held, that a patient who "tans" well need not fear a burn, is demonstrated by these cases to be untenable. Both of these patients tanned readily and profoundly.

Second, the "tanning" and excessive epithelial proliferation of the new skin observed in Case I, and the profound erythema and structural changes of the new skin observed in Case II, all of which modifications obtained in tissues which had developed months after exposures to the rays had ceased, indicate that the physiological action of X-light is not confined to stimulant or destructive influence upon tissues that already exist, but that it is capable of modifying most profoundly and more or less permanently, the developmental functions which control cell growth. I have previously expressed a belief in this phase of influence, and that we shall ultimately find that it plays no small part in the beneficial effect exerted by the X-ray upon many cases of malignant growths.

Third, the abrupt cessation of the sharp, cutting pains simultaneously with the final separation of the necrotic tissue, would point to direct irritation by the sloughing mass, of the distal ends of nerve trunks supplying the affected parts as their exciting cause, probably through the development of toxins by retrograde tissue metamorphosis at the line of separation; a pure neuralgia in short, and which would indicate extirpation of the necrotic area by curettement or otherwise as a logical management for X-ray dermatitis of this degree.

Fourth, the accelerating influence of the direct electrical current upon the process of healing after the slough had separated, noted in both cases, is significant from a therapeutical standpoint. The power of the negative pole of the direct electrical current to hasten repair in open sores of various sorts has long been known to electrotherapeutists, but the X-ray ulceration has exhibited a peculiarly intense resistance to all ordinary measures available for this purpose, and the knowledge that we have in this modality an effective curative agent even in this condition constitutes a comfortable thought. It is probable that skin-grafting will be avoidable in many cases where galvanism is available.

Fifth, the appearance of new areas of necrosis, in Case I five months, and in Case II six months, after the last X-ray exposure had been made, admits of three hypotheses in the way of explanation. It might have been due to a cumulative characteristic of the ray, whereby the direct effect of the exposure did not fully develop until after

these lapses of time; it may have been due to a modifying influence exerted by the ray upon the developmental functions of the cells involved, whereby the younger generations of cells were unable to acquire the degree of vitality necessary for the maintenance of tissue integrity; or it may have been the indirect result of circulatory insufficiency caused by an X-ray endarteritis obliterans which had required this length of time for its full development. None of these are entirely satisfactory, however, and we shall have to await the acquisition of a fuller knowledge of the modus operandi of X-ray effects, before we can decisively account for this, and many other of its vagaries.

Sixth, the sedative effect of anesthesine upon the pain in Case I, and its aggravating influence in Case II, illustrates the statement frequently made and the truth of which is now pretty generally admitted, that no two cases of X-ray pain can be depended upon to react uniformly to the same palliative agents. In no other condition does there obtain so emphatic an exemplification of the old adage that "What's one man's meat is another man's poison." Each case must be treated according to its own individual peculiarities, and usually the only way to ascertain the peculiarities is to begin at one end of the list of therapeutical agencies and apply them successively until we find one that is effective.

Seventh, the sudden and constant appearance of subcutaneous hemorrhage preceding the development of necrosis noted in Case II, is worthy of record, but I do not at present comprehend its significance, nor can I offer a satisfactory explanation.

In conclusion, the histories to date of these two cases, constitute a warning against exposing a patient to the X-rays with even a moderate degree of frequency through long periods of time, no matter how well they seem to bear them at first. There are few conditions so pregnant with torture for the victim as a deep X-ray dermatitis, and the risk of precipitating such a disaster is only justifiable in cases presenting an absolutely hopeless prognosis under other methods of treatment.

THE VALUE OF VAGINAL CÆSAREAN SECTION: WITH REPORT OF TWO CASES.*

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To Dührssen of Berlin the credit is due for having introduced this valuable method into practise. No matter what others may have done before him he has laid down the rules and indications for the operation and given them the widest circulation. It was only through his writings, about four years ago, that I became acquainted with them and was struck by the efficiency of his method in a case of uterine cancer at four months' pregnancy. I could at that time comprehend that it was destined to take the place of ventral Cæsarean section in nearly every case where the soft parts formed the obstacle to delivery or where a narrow pelvis could be excluded. The clinical reports of operations undertaken upon various indications seem to speak favorably of this method.

Dührssen first advised the operation in the *Allgemeine deutsche Aerztezeitung*, April 1, 1895, Nos. 7 and 8, where he spoke of the treatment of eclampsia. He said that in convulsions during pregnancy it was important to empty the uterus as quick as possible and this could be done by competent hands through an incision of the anterior wall of the cervix and lower segment of the uterus. Again at a meeting of the Obstetrical Society of Berlin, January 10, 1896, he said, "The vaginal Cæsarean section, according to my view, can only be done at a clinic and with trained assistance and it is indicated where a closed and undilatable cervix endangers the life of the mother and, in rare cases, that of the child." He then gave a description of his method of operating, which he had followed in a case April 24, 1896, at the normal end of pregnancy on a patient upon whom vaginofixation was performed some years before. The large size and transverse position of the child caused him some fear of serious trouble. In this case he made a longitudinal incision through the anterior and posterior uterine wall up to the internal os and drained the uterus by a tampon. On May 29, 1896, he presented the mother and child before the German Surgical Society and gave the following indications for vaginal Cæsarean section:

1. Abnormal conditions of the cervix and lower segment of the uterus (carcinoma, myoma, rigidity, stenosis of the cervix and partial pouch-like distention of the lower uterine portion).

2. Dangerous conditions of the mother, which may be removed or relieved by prompt emptying of the uterus—affections of the heart, lungs and kidneys.

3. Conditions of the mother where death is imminent and can be foreseen. The last two indications have only value in cases where the cervix is closed and not dilatable or where the depressing influence of labor pain should be obviated as in affections of the heart and lungs. In pregnancy complicated with cancer of the uterus he advocated immediate vaginal section with subsequent extirpation of the uterus, no matter at what time of pregnancy or at what stage of labor this condition is encountered. His mode of procedure consists in curetting and cauterizing the carcinomatous tissue with thermocautery, then he ligates the basis of the parametrium on each side, the vagina is then separated from the uterine portion on all sides and, if necessary, the opening can be enlarged by an anterior longitudinal incision. The uterus is pulled down with tenaculum forceps and a rapid median incision is made in the anterior and posterior wall of the uterus sufficiently large to extract the child. After the placenta has been removed the uterus is

* Read at the meeting of the Association of American Obstetricians and Gynecologists, Sept. 23, 1903, at Chicago.

split further up and the anterior and posterior cul-de-sac opened so that the uterus can be grasped higher up with forceps and pulled down to tie or clamp the ligaments from above. The suturing of the peritoneum ends the operation.

His second case was a moribund woman suffering from mitral insufficiency and dilatation of both ventricles with a high degree of compensatory disturbance, very feeble pulse, orthopnea, cyanosis and extensive edema. The child was slightly asphyxiated, the operation lasted only about twenty minutes, but the condition of the patient was such that she could not endure the operation.

His third case, one of eclampsia, was reported in the *Centralblatt für Gynäkologie*, No. 2, 1901, p. 54. Patient was in her sixth month of pregnancy, she died about twenty-three days after operation with symptoms of pulmonary tuberculosis and pneumonia, with a return of edema and albuminous urine. As the pelvic organs had recovered their normal condition he is justified in mentioning this case in his statistics as cured. He expressed the hope that he may see the time when the classical Cæsarean section will be replaced by the vaginal section in grave cases of eclampsia and advocates the latter method where the soft parts form a serious obstacle to labor and the life of the mother or child is in danger, provided the cervix is closed or undilatable. In his monograph: "Der vaginale Kaiserschnitt," 1896, he had already specified the indications for this operation plainly and comprehensively and thought that besides cancer of the uterus and eclampsia, uremia and premature detachment of the placenta with internal hemorrhage might call for it when the cervix is closed and there is absence of pain. Retroflexion, pouch-like distention or kinking of the gravid uterus might also furnish an indication. He also claims that with such an operation, under deep anesthesia, 93.75 per cent are saved in eclampsia, on the other hand 78.9 per cent. if left to spontaneous delivery.

Simon, of Nürnberg (*Münch. med. Wochenschrift*, No. 21, 1903), reports three cases of vaginal Cæsarean section. One case was operated on two years before for prolapse of the vagina and uterus where anterior and posterior colporrhaphy with amputation of the cervix was made. The resulting condition, stenosis of the uterus and vagina, complicated the act of confinement very much. Although the pains began three days before and the water had broken at that time very little progress was made. The cicatricial stenosis of the os and vagina proved too great an obstacle for spontaneous delivery. After having made an incision through the perineum and posterior vaginal wall he made a saggital incision in the anterior vaginal wall to the os uteri. As the cervix had been amputated before there was some difficulty in hooking down the uterus. Close to the cicatricial border he separated the vagina from the uterus by a transverse incision and after having pushed the bladder up from the uterus he made a median incision of 10 c.m. into the uterine wall which enabled him to grasp the head of the child with forceps and promptly deliver a living child weighing eight pounds. The placenta followed soon, he then stitched the uterus up with eight deep silk sutures, the vagina with catgut and the perineum with silk sutures. Patient recovered fully and had no return of the prolapse.

The second case, a primipara, thirty years old, had labor pains for five days, water broke at the start. The os opened the first two days to admit two fingers and remained in that condition, though the pains continued. They gradually became spasmodic, fever set in and patient became exhausted. The doctor found the head in the pelvis pushing the cervix before it, but the latter would only admit two fingers. He was unable to assign any cause for such a condition, unless it was the rigidity which is at times met in older primiparæ. As there were signs of a living child he concluded to make a vaginal Cæsarean section. The pelvis was normal, tetanic contractions of the uterus, pulse very rapid and general condition feeble and exhausted. The child was extracted with forceps after having made an incision into the perineum and anterior portion of the cervix and uterus. The mother died three days later, but the child is living.

The third case, a primipara, twenty-four years old, at the end of pregnancy, had eight convulsions without any sign of pain and was in a comatose condition. He made dilatation with metreurynter, which caused slight pains, but increased convulsions; two hours later he made vaginal section. The cord was prolapsed and pulseless, perforation of the head in this instance was considered the simpler way. Convulsions ceased, but coma lasted two days. Recovery of mother. As I have mentioned before, Dührssen said that premature detachment of the placenta might also furnish an indication for vaginal Cæsarean section. This soon found its practical application in a case reported by Rühl (*Centralblatt für Gynäkologie*, No. 47, 1901). Patient received a slight trauma to her abdomen the day previous. The following forenoon she had a few slight pains, followed suddenly by a very severe one, as if something had ruptured inside, a moderate amount of blood was found in the vagina. Patient became unconscious and fell to the floor. One hour later Dr. Rühl found the fundus uteri near the right border of the ribs; configuration of the womb was apparently normal, the right side of the corpus uteri, however, was more prominent. The fetal parts could not be felt distinctly, there were no movements and the heart beats were also extinguished. The vagina was filled with blood clots, the cervix not obliterated, its walls were thickened and hard, the index finger could hardly be introduced, the membranes were intact and became tense during the pains, the placenta could not be felt near the os uteri. Patient regained consciousness and stated that

her pains became harder. There was a constant trickling of blood and especially so during labor pains. Rühl introduced a colpeurynter to dilate the os, but about fifteen minutes later patient became unconscious again and deathly pale, the corpus and fundus uteri formed a projecting tumor of the size of a man's head, with a distinct elongated swelling pointing toward the cervix. This led the doctor to the conclusion that there was internal hemorrhage calling for immediate operation. Patient received saline infusions and the anterior and posterior walls of the cervix were incised, which caused no great hemorrhage. The time from the incision to the extraction of the child occupied six minutes. The placenta and large blood clots followed spontaneously; hemorrhage ceased immediately after the uterus was emptied. Patient was in a precarious condition for about twenty hours, repeated saline infusions and injections of camphorated oil produced a change for the better. Rühl thinks that the classical Cæsarean section might present less technical difficulty in the hands of a surgeon not skilled in vaginal operations.

Another interesting case was recently reported by Rühl (*Centralblatt für Gynäkologie,* No. 34, 1903), under the heading "Hysterotomia anterior vaginalis owing to intense rigidity of the cervix, complicated by a tear in the lower uterine segment and parametrium. Patient, twenty-five years old, primipara, had been in labor five days before he saw her. She was extremely feeble, pulse 120 per minute, temperature, 37.8° C. She had constant pains, uterine walls were very tense and sensitive on touch, contraction ring distinct about three fingers width below the umbilicus. External genitals were not more developed than those of a girl, twelve to thirteen years old and exhibited no sign of pregnancy such as swelling, softening or discoloration. Pelvis, somewhat narrow, was funnel shaped, vagina would admit two fingers. Head was down in the pelvis pushing the lower uterine segment before it. Cervix could hardly be reached, it was high up and far back in the pelvis, hard and not dilated at all, the external os was completely closed. The water had broken five days ago and there were tetanic contractions of the uterus. As there was danger of rupture of the uterus he thought immediate delivery was indicated. There was some difficulty in bringing down the cervix and an effort to dilate it with instruments succeeded only so far as to admit one finger. He, therefore, made an anterior incision and delivered a living child by forceps. In spite of all care and multiple incisions into the vagina he tore the latter in two places and had also a perineal tear into the rectum. The hemorrhage was so severe that patient collapsed in one-half minute and, though the placenta was immediately removed and the uterus had contracted, the bleeding still kept up. The cause of the latter was found in a tear which started from the highest point of the anterior incision in a transverse direction to the left side and lower part of the parametrium. These parts were immediately grasped by forceps and, after a squirting artery was ligated, they were united by sutures which checked the hemorrhage completely. The anterior incision and vaginal and perineal tears were also united and patient made a nice recovery.

Bumm was also able to report in *Centralblatt für Gynäkologie,* No. 52, 1902, 13 cases of his own with one death of the mother due to coma in eclampsia. The indications for his operations were cancer of the uterus in two cases, eclampsia in five cases at the seventh, eighth and ninth months of pregnancy. One case of nephritis at the ninth month, another case of nephritis complicated with mitral stenosis and insufficiency was operated on in her sixth month of pregnancy under local anesthesia and greatly improved after this. One case of severe chorea, operated on in her fifth month, was delivered of twins and relieved of her chorea in about one week. One case was operated on for hemorrhage in her sixth month of pregnancy, which was due to vicious insertion of the placenta. In two cases of flat, rachitic pelvis artificial induction of labor was resorted to. Braun-Fernwald (*Wiener med. Wochenschrift,* No. 28, 1898) made the operation on account of stenosis of the cervix and vagina, he made anterior and posterior incisions. Ehrendörfer reports a case (*Centralblatt für Gynäkologie,* No. 16, 1903) where hyperemesis gravidarum formed the indication for operation at six months' pregnancy. The vomiting and salivation gradually ceased after one and a half days and she made a nice recovery. Spinelli operated on a case in 1898 for cicatricial stenosis and hydramnios with uncontrollable vomiting.

Dührssen reports another case of eclampsia (*Centralblatt für Gynäkologie.* No. 16, 1903). The patient was a primipara, her legs and face began to swell about the end of January. On February 23 her vision became disturbed, she had severe headache and vomited twice a day. On February 26, she had five convulsions, the vagina would only admit two fingers, was rigid and dark blue, cervix not obliterated and would only admit one finger. An incision in the right vaginoperineal region gave sufficient access to his fist. After he had made an anterior incision into the womb he found it necessary to make one also in the posterior portion to admit his hand. After version was made a living child was delivered. Half an hour later the placenta was removed by pressure and as there was some hemorrhage due to uterine atony a gauze tampon was introduced. The posterior incision required four and the anterior five catgut sutures. The vaginal incision was stitched up with continued catgut sutures after having left a small gauze strip for drainage. The urine was free from albumin on March 1, and patient left the hospital in good condition on March 6, 1903.

To the above reported cases I can add one of my own, where I performed vaginal Cæsarean

section for eclampsia. Mrs. J. B., Bellevue, O., about thirty-five years old, had four children. On April 22, 1903, at her seventh month pregnancy, she began to have convulsions at 8 P.M. and had about seven attacks before I saw her the next morning at 9 o'clock with Drs. Richards and Harding. She was comatose since midnight, temperature 101° F., pulse 95, she vomited several times, bowels moved three times. The cervix, not obliterated, admitted the little finger, but an attempt at further dilatation with instrument proved futile or, at least, would have been too slow. Two fatal cases in my practice gave me the conviction that more rapid delivery might have given better results. While we were preparing for the operation, at the home of the patient, she had another convulsion. The posterior portion presented more favorably than the anterior and, owing to the surroundings and scant assistance, I thought I would follow the way which seemed the easiest for me under the circumstances. On that ground I made my deepest incision into the posterior portion (about 4½ inches long) and then a more shallow one into the anterior with the knife. Hemorrhage was not profuse, as I at once introduced my hand into the uterus and made version. There was a little delay in getting the head of the child through the vaginal outlet, but the whole procedure occupied only six minutes, the placenta was removed a few minutes later by pressure and an iodoform gauze tampon introduced into the uterine cavity. The incisions were stitched up with catgut sutures and the whole operation was done in about twenty-five minutes. Patient rallied after several hours, the child lived about one and a half hours. I saw patient about two months later, she was in perfect health, a small portion of the posterior incision had not united, urine was free from albumin.

There was over 60 cases of vaginal Cæsarean section reported so far, the majority of them were undertaken for cancer of the uterus, but the number performed for puerperal convulsions is also increasing rapidly and it seems that this trouble will furnish the chief indication for such an operation in the future. Most authorities seem to agree that rapid delivery is the most important measure to reduce the mortality in eclampsia, I also think that rapid dilatation with Bossi's dilator or similar instruments will be superseded in some measure by an operation where the extent of incision or laceration is more under your control and where the wound gives more promise of healing by primary union. The operative technic consists in exposing the uterine portion by a large speculum or retractors and grasping it by two pairs of forceps on either side of the os. A longitudinal incision of 5 to 7 c.m. is then made in the anterior wall of the vagina down to the os uteri. The loose cellular tissue is then opened with scissors between the bladder and cervix. The bladder is pushed back with a small piece of gauze as far as the internal os and corresponding to that height a saggital incision through the anterior wall of the cervix is added. The upper margins of the wound are again grasped by forceps in a manner similar to morcellement and vaginal myomotomy. This exposes a further portion of the womb, the bladder is pushed up more and another incision is made through the lower segment of the uterus. If this maneuver is repeated a few times an incision of 8 to 12 c.m. can readily be made under the guidance of the eye and without opening the peritoneum. This incision is generally large enough to admit the hand and to extract a mature child. Should it, however, not be sufficient a similar procedure can be followed at the posterior portion. In the majority of cases it is probably best to wait for the natural expulsion of the placenta or, if it does not follow soon some pressure upon the uterus can be used. This operation is no doubt best done at a hospital, but it can, in case of necessity, also be done at the patient's home, as my case proves. As a rule the incision in the anterior portion is preferable, I could, however, see no especial difference in my case and would in the future be guided by circumstances. These incisions can be closed by catgut sutures or other material. Dührssen recommends uterine tamponade, others again reject it.

Since the writing of this paper, I had the opportunity of operating on a second case of puerperal eclampsia. Mrs. F. S., age twenty-five years, primipara, pregnant eight months, complained of headache for a few days. On September 6 at 4 P.M. she began to have convulsions and had about five before I saw her with Dr. Stierwalt four hours later. The doctor had given her one and a half grain of morphine a short time before. She was in a deep stupor, but could be aroused for a few moments. The head was down in the pelvis pushing before it the anterior portion of the womb, cervix partially obliterated, would admit two fingers. She had no pains; temperature 98.4° F., pulse 114, urine thick with albumin; it was like a boiled egg. As I did not wish to operate by lamplight, if it possibly could be postponed, we concluded to wait till daylight and to give her morphine or chloral in case of necessity. She was brought to the hospital early the next morning and had in all about eight convulsions, was cyanotic, tongue bleeding, dark and covered with crusts, some puffiness about the eyelids. Cervix in the same condition and there were no signs of pains. Operation began about 7 o'clock, anterior incision was made about three inches long, bladder was pushed up further, but as tissues seemed so brittle I thought it best to make also a posterior incision about 4½ inches long, this admitted my hand so that version could be made readily, child was delivered in about seven minutes; it took a few gasps but did not revive. Hemorrhage was not severe, placenta was removed five minutes later by pressure; operation lasted a little over one-half hour. Four catgut sutures united the anterior incision and

six the posterior. There was a shallow tear of the perineum which extended also through the wall of the vagina nearly up to the parametrium, this was united by continued catgut suture. Salt solution and camphorated oil were injected, pulse 110, temperature normal. Consciousness returned somewhat about 6 o'clock P.M. on the day of operation. Esbach's albuminometer showed about 10 grams of albumin (2 per cent.) after an equal quantity of water had been added to the urine, the next day it went down to one-half gram. Patient left the hospital in about three weeks in very good condition and urine was free from albumin.

MEDICAL PROGRESS.

MEDICINE.

Cyclical Albuminuria.—This is a term used by Pavy, to designate certain cases of albuminuria occurring without demonstrable organic disease of the kidneys in individuals otherwise in normal health. A. R. Elliott (Med. Rec., Dec. 12, 1903) has recently followed two cases for some time, which now present conditions which answer all the requirements demanded of this type of case—namely, periodical appearance of albumin in the urine without casts and without any other signs in the body that organic changes have occurred in the kidneys. In both these instances there was an entire absence of albumin in the morning urine, its presence occurring during the middle of the forenoon, reaching its height about three o'clock and then disappearing in the evening. Its presence seemed to depend more upon the standing posture than upon exercise or the diet. In both of these instances, however, there had been unmistakable attacks of mild nephritis in previous years from which the patients had seemingly entirely recovered, with the exception of this periodical discharge of albumin. No doubt, there had been, however, some slight organic changes, which were sufficient to influence the function of the kidneys in this way. The author believes that if these instances of functional albuminuria could be carefully traced back it would be found that in nearly every case some organic change had previously occurred. He would, therefore, suggest that they are, after all, organic in their causation, but that they may never be of sufficient importance to influence the general health.

Spontaneous Cure of Carcinoma.—While disappearance of benign tumors is undoubtedly possible, most authorities are skeptical concerning the spontaneous cure of cancer, though it is generally admitted that theoretically the cancer cells may be so interfered with in their nutrition that they degenerate. Most reported cases, according to H. Mohr (Therap. Monatshft., Nov. and Dec., 1903), were not carcinomatous at all, in others merely a period of latency set in owing perhaps to the removal of the inciting cause, such as an irritating tooth. The surrounding inflammatory reaction will gradually disappear and it actually seems as if the tumor were getting smaller. Yet, in every malignant tumor the body does not permit an unlimited growth of the pathological tissue; on the contrary, it tries to overcome the invasion by connective tissue proliferation and perhaps also by the production of specific cytolysins, and we will never be able to tell how often cancer is checked in its incipiency. Various constitutional derangements exercise an inhibitory influence, then a cessation of growth is often noted with reduced vitality and debilitating infectious diseases such as sepsis and syphilis. Concerning the influence of other diseases, very little is known, but mild diabetes seems to check and florid diabetes to hasten the growth of cancer. There seems to be a very peculiar relation between the genital organs of women and malignant growths, especially of the breast, and parturition, lactation and the menopause seem to occasionally exert a favorable influence. Beatson's operation is based upon this observation and no doubt does good sometimes. From time to time undoubted cases of pyloric cancer are reported cured after simple gastro-enterostomy; the only possible explanation here is that the removal of all irritating agencies prevented further development. Complete disintegration through necrosis and gangrene is also possible, and erysipelas, while it lacks any specific action, is able to set up so strong a reaction that the leucocytes eventually destroy the tumor cells. In intestinal growths complete ulceration has been observed through the action of intestinal bacteria, though all malignant cells are rarely destroyed. The great drawback against applying this principle in therapy is the danger of general infection. A most promising subject is that of specific cell-poisons, and it may yet be possible to destroy cancer cells by some toxin which does not influence the normal cells of the body.

Postural Albuminuria.—Probably under no conditions can albuminuria ever be physiological. Sir William H. Broadbent (Brit. Med. Jour., Jan. 2, 1904) states that a greater precision in the definition of what we mean by functional albuminuria is necessary. Although this may be admissible in the sense given to it by Dr. Pavy as a contradistinction to structural, it is vague. The albuminuria of the apparently healthy is still more unsatisfactory in designation. It may be said definitely that there is an effection which may be called postural albuminuria. This applies to that small class of cases from which have been eliminated early nephritis and nephritis in process of recovery; early stages of granular kidney; unsuspected heart disease, albuminuria from fever, from overfeeding or indigestion, gout or oxaluria. There is left a group of cases in which the characteristic feature is albuminuria on rising from bed in the morning, usually passing off in the course of the day. This condition is frequently seen in young students, and the designation of albuminuria of adolescence is appropriate, but the term postural albuminuria is better. The albumin is not due to food. It does not appear if the patient remains in bed to breakfast or after meals during the day. It cannot be toxemic; it disappears quickly on lying down. It is obviously in relation with the erect posture and scarcely less obviously with imperfect cardiovascular adjustment to the changed hydrostatic conditions. The amount of albumin is usually small. It is important that the form of albuminuria should be recognized, since the treatment required is the diametric reverse of the liquid diet and rest of ordinary nephritis. A neurotic family history is a common antecedent. The pulse often changes markedly on standing up or lying down. A high tension pulse contraindicates the probability of an existing albuminuria being postural. Another sign is that the second sound is reduplicated when the patient lies down. The prognosis is favorable, cure resulting in almost every case from improved hygienic surroundings. If, however, these cases are put on milk diet, are protected from cold and forbidden to take exercise, they may be converted into helpless and chronic invalids.

Fetal Heart Murmurs in Gravida.—Up to 1897 but three cases of this variety were on record, two of which

were reported by Hochsinger and the third by Christopher, of Chicago. J. N. Hall reported another at that time. During the first week of November a pregnant woman was admitted into the Woman's Hospital in Denver, Colo., and it was during the examination of the heart sounds of the fetus by H. G. Wetherill (Am. Jour. of Obstet., Jan., 1904), that a murmur was detected, and it was clearly pronounced and made out to be systolic in origin. It was heard two inches below and to the right of the umbilicus of the mother, and was audible over an area of about three inches of the abdominal wall. By external palpation the position of the fetus was found to be L.O.A., and the head lying rather low in the pelvis. The mother was twenty-eight years old, a IV-para and until Oct. 1 had been as well as in her previous pregnancies. The diagnosis of the presence of the systolic murmur was confirmed by examination of the heart of the child when it was born, a month afterward. The murmur was still present when the mother and child left the hospital on November 19.

Rare Form of Persistent Ductus Botalli.—Four forms of persistent communication between the aorta and pulmonary artery are recognized by O. Wagener (Deutsch. Arch. f. klin. Med., Vol. 79, Nos. 1 and 2): (1) Extreme shortness of the canal, so that there is merely a deficiency in the walls of both vessels; (2) funnel-shaped structure, the wide end of the funnel corresponding to the aorta; (3) cylindrical shape of varying length; (4) aneurysmal dilatations. These may rupture during birth and cause sudden death. At an autopsy, another rare condition was found: the canal was open in its entire length except at the pulmonic end, where a delicate membrane prevented the admixture of systemic with pulmonic blood. It was impossible to say if this membrane had formed in later life, but the observation is of value, since it would explain certain cases where the symptoms of open duct disappear as the patient gets older. The cure need not, however, be permanent, as the membrane is so delicate that it may readily rupture. A narrow communication frequently gives no symptoms, which accounts for the fact that the condition is so rarely diagnosed during life.

Vocal Cords in Double Recurrent Paralysis.—It is a well-known fact that in double recurrent paralysis, a forced adduction of both vocal cords is often noticed with every inspiration which closely presses the cords together. F. Sinnhuber (Deutsch. Arch. f. klin. Med., Vol. 79, Nos. 1 and 2) ascribes this phenomenon as observed experimentally to a rarefaction of air beneath the glottis and to the action of the muscle of the neck and pharynx which are brought into play as soon as dyspnea sets in. The adduction disappears after tracheotomy, but persists when the neck muscles are severed. Clinically, however, the rarefaction plays a less important part, since tracheotomy does not overcome the median position of the cords. It is here probably due to the cricathyroid, after fixation of the arytenoid cartilage by means of the lateral cricoarytenoid. The expiratory dilatation would then be due to relaxation of the cricothyroid.

THERAPEUTICS.

Action of Digitalis Upon the Heart.—Most of what is known concerning the direct action of digitalis leaves upon the heart, is based upon observations on the excised organ of the frog, for it has hitherto been impossible to keep the more delicate mammalian heart at so even a temperature and to introduce the circulating fluid with so uniform a pressure, that extraneous influences are entirely excluded. Since digitalis most likely influences frogs differently than man in that slowing of the pulse in the latter is solely due to irritation of the vagus center, while in the former, peripheral stimulation will also lead to bradycardia. R. Gottlieb and R. Magnus (Arch. f. exp. Path. u. Pharmak., Vol. 51, No. 1) have gone over the subject anew, with improved methods. In these experiments cats were bled until respiration ceased; then enough warm normal saline infusion to correspond to the entire amount of blood was injected into the jugular vein and this also removed. The total fluid was defibrinated and diluted to 500 c.cm. To half of this, a certain amount of strophanthin in some experiments, and digitoxin in others, was added; the other half was used as control. The heart was then excised and the fluid injected directly into the coronary arteries. It is absolutely necessary to maintain a temperature which does not vary within a single tenth of a degree and to regulate accurately the rate of flow, else variation in the beat will occur even in the control experiments. Registration by means of the graphic method was accomplished by inserting a small lever into the apex of the heart and by means of a small rubber bag in the ventricles which recorded all variations of pressure on a tambour. The result of the experiments is as follows: During the first fifteen minutes, the contractions increase considerably in number. Both ventricles participate in this, and slowing of the pulse from the beginning is very exceptional. In most cases the systole is shortened in this stage, the diastole lengthened and the actual height of the contraction increased. Considerably later, the contractions diminish in frequency; finally the heart stops in systole or the beats become very irregular. The relaxation during diastole will become less and less marked and even when pulsations are no longer recorded, the spasm may increase so that the heart finally feels very hard. If the pressure of the circulating fluid be increased, a heart which is spastically contracted, may again begin to beat, an observation which had already been made on the frog's heart and which is due to an increase in intracardial pressure. Where the heart's action is irregular, digitoxin will render it regular. Further experiments were made upon the actual work the heart does when under the influence of digitalis and there was found to be a marked increase in the output of energy with every contraction, so that $2\frac{1}{2}$ to $3\frac{1}{2}$ times more work is done than normally.

Action of Alcohol and Metals Upon the Sea Urchin.—The addition of even a small amount of alcohol to sea-water containing very young fertilized eggs of the sea urchin seems to be very injurious to the development of this animal: cell-division and gastrulation are considerably delayed and the motility of the mesenchyma cells is interfered with so that the skeleton is but incompletely developed and its various branches show atypical arrangement. Older eggs are more resistant and the concentration must be increased considerably to have any effect. Concerning the toxicity of various alcohols, I. Führer (Arch. f. exp. Path. u. Pharmak., Vol. 51, No. 1) finds that prophylic alcohol is three to four times more poisonous than ethylic and this again three times more poisonous than methylic. Sugar and urethane possess the same action to a less pronounced degree. The addition of arsenic to sea-water does not influence cell-division or gastrulation, but the invagination of the intestine is delayed. Copper brings about atypical division while mercury, even in very high dilution, kills the eggs immediately.

Action of Drugs on the Coronary Circulation.—The action of the heart stands in intimate relation to its blood-supply and the condition of the coronary ar-

teries. If the blood-pressure rises with more active cardiac contraction, more blood will also pass through the heart-muscle so that the heart will be able to work against increased resistance. The width of the blood-stream within the heart also plays a prominent part in the nutrition of this organ and it is a significant fact that many poisons have an appreciable influence upon the tonus of the coronary vessels. Since it is still impossible to study the mammalian heart in connection with the nervous system, the experiments of O. LOEB (Arch. f. exp. Path. u. Pharmak., Vol. 51, No. 1) concern themselves solely with the peripheral action of drugs. The heart was isolated, blood allowed to circulate through the coronary system under constant pressure and temperature and the amount of blood escaping from the coronary veins into the auricles, carefully measured from minute to minute. In control experiments a slight contraction of the vessels was noticed, that is, the escaping blood became less each minute; this did not, however, interfere, as there never was a sudden rise or fall, such as would be expected upon the addition of an active drug to the circulating fluid. Briefly, the results are as follows: The coronary vessels are not much influenced by strophanthin, while digitoxin contracts them so strongly that only half the amount of blood is allowed to flow through after a few minutes. Caffeine and theobromine increase the frequency and volume of the pulse; the amount of blood discharged by the coronary vein remains the same or is slightly increased. The latter need not depend on dilatation but may be due to the increased heart action; it is more marked with theobromine than with caffeine. Amyl nitrite in a concentration of 0.06-0.2 per cent. does not influence cardiac contraction but leads to the formation of methemaglobin. Larger amounts dilate the vessels, still larger ones reduce the heart's action so that less blood escapes. Since the chief therapeutic action of amyl nitrite is directed toward the central nervous system, these experiments prove little. Ether dilated the vessels and interfered seriously with the heart-beat; chloroform proved so toxic an agent that accurate observations could not be made, while alcohol even in high concentration seemed to have little effect other than an increase of the pulse-volume.

Cumulative Action of Digitalis.—If cats receive a toxic dose of digitoxin, it requires some time before slowing of the pulse will appear; this slowing may, however, persist for seven days before the animal dies. Sometimes the pulse becomes extremely frequent and irregular before death; at other times, extreme bradycardia persists. The intensity of the symptoms does not depend alone upon the amount of drug circulating in the blood in a given time, but also upon the way it is given: thus a single dose may kill, while the same amount given in two doses during twenty-four hours need cause no toxic symptoms. Many small, inactive doses will cause summation of effect, so that a slowing is noticed after several days; this slowing will persist for days like after a single large dose, but toxic symptoms are generally avoided. Digitalin acts more rapidly but the bradycardia persists equally as long as with digitoxin, according to A. FRAENKEL (Arch. f. exp. Path. u. Pharmak., Vol. 51, No. 1). It is much easier, however, to determine a continuous dose without inducing toxic symptoms, but even after ninety days a slight increase in the dose will be followed by vomiting, since tolerance is not established. Strophanthin acts still more rapidly, but the same cumulative action develops. In this respect all three substances seem to be alike. For each one there is a daily dose which does not become toxic even after weeks. The fatal dose of digitoxin is about 0.08 milligram per kilogram; this corresponds to 0.48 milligram of digitalin. With the former glucoside, one-third of the fatal dose will cause intoxication after the third injection; with the latter, as much as one-half may be given for weeks with impunity. The degree of cumulative action probably does not depend on the rate of excretion, since strophanthin, being readily soluble, would be voided quickly; it is most likely due to some compound formed within the heart muscle which is only broken up with difficulty. The time which elapses before the symptoms appear, seems to depend solely on the solubility. It may be said in a general way that digitoxin is indicated where a short energetic cure is desired; digitalin and strophanthin are safer for long-continued daily use and the latter especially where rapid action is desired.

Pure Carbolic Acid in the Treatment of Smallpox.—This disease is relatively prevalent in the eastern Canadian provinces. JAMES T. NEECH and F. J. HODGSON (Lancet, Dec. 26, 1903) report their experiences by this method of treatment in 136 cases. Of this number five died, which gives a death rate of 3.6 per cent. The epidemic was a mild one. The bulk of the patients were not efficiently vaccinated, so that the character of the disease and the modifying effects of vaccination did not materially contribute to this low rate. The method adopted was to apply the pure carbolic with a small camel's hair brush to the vesicles over a certain area each day until all had been touched. These applications were continued until the vesicles showed signs of drying up. Toxic carboluria was present in but two cases, both belonging to one family, so that idiosyncrasy might have been present. In a number of cases only one side of the patient was treated with carbolic acid, the other receiving applications of camphor or guaiacol or formalin. In every case it was plain to see that the carbolic acid was the best. The pain of the applications is very slight, but to compensate for this, the itching was immediately and in most cases permanently relieved. The postules rapidly shriveled and the further development of papules and vesicules was either prevented, or, if not ahorted completely, very nearly so. All vesicles were scabbed under this treatment in from five to ten days and in from ten to eighteen days the scabs had fallen off, except those in the palms of the hand and soles of the feet. The tendency to the formation of scars was very much reduced by the treatment. The offensive odor characteristic of the disease was entirely absent. The absorption of septic material from the postules was almost entirely stopped. This kept the temperature at a relatively low level after the appearance of the pustular stage, it never rising above 102° F., even in confluent attacks in the unvaccinated. Delirium was infrequent and no rise of pulse marked the advent of the pustular stage. The danger of infection by aerial convection is so much lessened that patients can with safety be discharged ten days before the usual time. Under this treatment, in these 136 cases, there was an entire absence of complications.

Arsenic Habit.—Some interesting experiments are recorded by W. HAUSMANN (Deut. med. Woch., Dec. 31, 1903), who was able to immunize fowls and dogs against arsenic by treating them with repeated small doses. The degree of immunity was very slight and resembled that which is seen among the inhabitants of Steiermark in Europe who are renowed as habitual arsenic eaters. These people and also the experimental animals are known to succumb when larger doses are given and the amount tolerated is even less than that ingested by normal individuals who had never been accustomed to the drug. It was found that the arsenic was less toxic in the powder form than in solution.

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ARE EXCITATION, INHIBITION AND NARCOSIS DIFFERENT PHASES OF THE SAME ACTIVITY?

There are no three processes in the physiology of the nervous system that to so great a degree challenge the speculative powers of physiologist and neurologist alike, as excitation, inhibition and narcosis.

The latest theory of the nature of these mysterious phenomena is advanced by one who has worked and pondered over them for many years, by N. E. Wedensky (*Pflüger's Archiv*, Nov. 19, 1903), who holds them all manifestations of one common activity.

Hitherto physiologists have attributed excitatory and inhibitory manifestations to distinct centers and nerves, whose functions are diametrically opposed to each other, the former giving rise to oxidative or catabolic, and the latter causing synthetic or anabolic processes in the tissues affected. The fact that stimulation of cortical motor areas, as discovered by the author and confirmed by Hering and Sherrington, produces not only contraction of certain muscles but also relaxation of the antagonists of the latter, can have only one explanation, namely, that inhibitory phenomena in the nervous system are universal and are evoked simultaneously with every excitatory process. The author questions whether it is necessary to assume the existence of special inhibitory mechanisms, and suggests that the apparatus which usually stimulates, may at times exert instead the opposite effect; that along one and the same path and to one and the same endorgan, under certain conditions, either excitatory or inhibitory impulses may pass.

The inhibitory action of the vagus was at first attributed to an exhaustion of the nerve produced by strong shocks, yet it has been shown in the case of muscle-nerve preparations that as soon as the inhibitory influence has gone, it is possible to get the muscle to react to weak excitatory stimuli. Closely allied to this is the subject of narcosis, which has been attributed to the power of the nerve-cell to draw in its dendrites, which power would cause the phenomena of sleep and narcosis by breaking the intimacy of contact between contiguous nerve-cells. There is no connection between nerve excitability and nerve conductivity. The former may be suppressed while the latter will survive. Thus chloroform, ether, carbon dioxide and alcohol would narcotize the nerve, reducing its excitability, and yet not affect in the least its conductivity to nerve-impulses. Wedensky found that in the early stage of the narcosis of a part of a nerve there is really a reduction in the conductivity for all degrees of impulses excited in the normal part of the nerve (provisional stage), but in the later stage of narcosis the more powerful impulses are not transmitted by the narcotized nerve, while weak impulses are freely transmitted (paradoxical stage). The narcotized stretch of nerve preserves its power of conducting weak impulses longer than any other portion.

The explanation of these phenomena is that there is no distinction, as processes, between conductivity and excitation. In the paradoxical stage the impulse starting in the normal portion of the nerve produces in the narcotized portion an inhibitory effect. This has been proved by the experiment of stimulating the narcotized portion in such a way as to produce a weak contraction and before this has disappeared, to send into the nerve above the narcotized portion another shock, with the result that the contraction suddenly ceases: as soon as the latter shock is discontinued, the contraction is resumed. This experiment is of engrossing interest for three reasons: First, it shows the inhibitory influence of one portion of the nerve upon another. Second, while formerly the narcotized por-

tion was considered as offering a resistance to the oncoming impulse, the above experiment teaches that the oncoming impulse, by acting on the narcotized portion which it is obliged to traverse, causes the blocking of its own passage. Thirdly, there is a reciprocal effect, that of the narcotized portion on the oncoming impulse and that of the impulse on the narcotized portion. The experiment leads logically to the conclusion that excitation, inhibition and narcosis border upon and merge into one another. In the later phases of the narcosis of a part of a nerve, tetanic stimuli applied to the normal portion produce a relatively long after-effect of inhibition, leaving the nerve in a condition of deeper narcosis.

What, then, is narcosis? If this is in direct relationship with inhibition or, as seen above, merges into it, while the latter is firmly bound up with the process of excitation and in certain cases is a modification of it, corresponding to strong excitatory impulses, while weak ones produce the customary stimulating effects, then narcosis would be nothing more than a mere modification of excitation. By using ordinary chemical stimuli, the author could produce conditions in the nerve similar to narcosis. The same could be brought about by high temperatures, but not high enough to kill the nerve. The reduction in conductivity brought about by passing a constant current through the nerve, produces in its early stages the same paradoxical condition noted in the early stages of narcosis. In fact, many forms of stimulation, chemical, mechanical, electrical and thermal, of a certain strength and duration, evoke in the nerve the same condition as narcotics. This condition the author terms "parabiosis," which has a more generalized significance than the word "narcosis," inasmuch as it represents the general reaction of the nerve to heterogeneous influences and is also the condition through which all nerves pass antecedent to death. It also represents a condition which is much more general than that of excitation or activity in the restricted sense. The nerve is capable of passing through four conditions, which merge imperceptibly into one another, and which, in order, are: A, Rest, B, Activity, C, Parabiosis (Narcosis, Inhibition), D, Death. B and C represent the condition of excitation. B is that form and stage of excitation which reveal themselves by means of outward effects. C is a condition of stable excitation remaining localized at its place of initiation. The transition from A to B may be regarded as increased irritability. But if the agent employed has not the property of producing an excitation in the ordinary sense, the increased irritability may pass directly into C, as occurs with chemical stimuli in weak solution and the majority of poisons. In individual instances the direct transition from A to C is possible without the intermediate phase of increased irritability (the action of ammonia). The transition from B to C is shown by all those stages termed by the author "transitional," namely, the provisional, paradoxical and inhibitory stages. Finally, under certain conditions C passes into D, inhibition in narcosis merges into death. It is well known that stimulants and narcotics in greater intensity and on prolonged action usher in final dissolution. Wedensky believes that every agent, before it kills the nerve, causes it to pass through the condition of parabiosis, just as the dying muscle first passes through the condition of rigor mortis.

OPERATIONS FOR NEPHRITIS.

In the symposium on nephritis at the recent meeting of the Medical Society of the State of New York, published in abstract in the Medical News, February 6, 1904, a number of very interesting considerations with regard to the possible extension of operative procedures to the cure of nephritis were brought up.

There seems no reason to doubt now that surgery can do something for kidney disease, though it cannot accomplish as much as has been fondly hoped at times in quite recent years. Mr. Reginald Harrison's operation for the relief of hyperemic congestion of the kidneys has proved to be of service in other hands besides his own. As the result of his observations when nephritis occurs in the course of an infectious disease and symptoms of renal inadequacy begin to assert themselves, it would seem advisable for the medical man to be ready to call a surgeon in consultation. If in a case where there have been casts and albumin for some days the urine begins to grow markedly less and finally is passed in small quantities, or even absolute anuria occurs for twelve to twenty-four hours, then a hope for the patient may be found in the splitting of the fibrous capsule of the kidney.

Mr. Reginald Harrison has very picturesquely called this condition, "glaucoma of the kidney." When the kidney is laid bare the fibrous capsule is found very tense and as soon as an opening is made in it, along the white line of the external edge the parenchyma of the kidney comes bulging

out of the capsule. Within a few hours after the operation as a rule, the kidneys begin to secrete again and usually a lessening of the toxemia seems to occur.

With regard to the so-called Edebohls operation, and the removal of the fibrous capsule of the kidney with the idea of providing a new circulation for the cortex of the kidney some very interesting additions to our knowledge were made. Dr. Willis G. Macdonald, of Albany, called attention to the fact that every surgeon who has operated much on floating kidney has found not infrequently that the fixation of a movable kidney in the loin was followed by a very notable improvement in urinary symptoms. Whenever a kidney is very movable there is almost sure to be some albumin and casts in the urine. The albumin is usually not much in amount. The specific gravity of the urine is about normal. The casts are not of the dangerous degenerative varieties, they do not contain broken down cellular material nor blood cells, but are simple hyaline cylinders. After the operation these urinary symptoms practically disappear and the patient may live for many years without any further symptoms of nephritis. The condition seems to be almost the same as that of the kidney of pregnancy, which, during actual child-bearing, may give all the symptoms of a real nephritis and yet clear up completely after labor, leaving no trace of the supposed serious condition that existed.

From this, however, to the cure of real nephritis, by stripping the kidney capsule in order to secure a new blood supply by the adhesions which form is a long step. As Dr. Van Cott, of Brooklyn, said, the hope in such a case must be that somehow the blood supply will be obtained from the fatty capsule of the kidney. Unfortunately for the theory, however, the blood vessels of the fatty capsule are not numerous and the course of the blood in them is away from the kidney. When fibrous capsule is removed in animals a new connective tissue covering for that organ develops much thicker than before and commonly sends down strands of connective tissue into the secreting substance of the cortex. Like all connective tissues, this has eventually a tendency to contract, and during the course of contraction it seriously interferes with the parenchymatous structures in its neighborhood. There seems to be very little hope on general principles of securing a new blood supply for the kidney by the mere removal of the fibrous capsule, even though it should not regenerate.

Supposing, however, that an additional blood supply should develop for the secreting portion of the kidney, it is doubtful whether this would be of any particular benefit.

Not long since a distinguished comparative anatomist was present at an operation done on a young doctor for nephritis with stripping of the capsule as the central idea for possible relief of symptoms. He had never seen the operation done before and he asked how soon they expected the new blood vessels to form. They said in a few days, though of course they expected them to continue to grow for several weeks or even more. His reply was that if they expected them to grow in ten years, he might think something of their theory.

It is a difficult matter, however, to compare theory with experience. There are certainly some cases reported, as for instance, three at the meeting of the American Physicians in Washington, last spring, in which relief was afforded by the performance of the Edebohls operation. While it may not be beneficial for many cases, there seem to be some in which it does good.

In the meantime medical men must remember that mild cases of nephritis or even those that are severe, but have already lasted for many years, should not be subjected to the strain of an operative procedure with the associated irritation of the administration of ether, until the status of the operation has been more definitely determined by its application to more hopeless cases. Every physician of any experience in kidney disease has patients under observation who have suffered from nephritis for ten or even fifteen years and yet are fairly well, only that they lack endurance. Such patients are much more likely to be harmed than helped by any operative procedure, for it is possible that they may live out a normally long life, even with damaged though not inadequate kidneys.

ECHOES AND NEWS.

NEW YORK.

Columbia and the College of Pharmacy.—Negotiations are on foot to make the College of Pharmacy a part of Columbia University, subject to the approval of the members of the college at the annual meeting on March 15. Nicholas Murray Butler, President of Columbia, has been nominated President of the college by the Trustees of that institution. Dean Charles F. Chandler, now President of the college, will become the First Vice President. Several years ago proposals by the College of Pharmacy to unite with Columbia had no result. Recently, however, it had been resolved by Columbia

that some provision must be made in its educational system for pharmacy. Michigan, Wisconsin, Northwestern and Minnesota have heretofore been the largest universities recognizing pharmacy. It is proposed that the college will hold the same relation to Columbia that Barnard and the Teachers' now do. Next month's annual meeting is the seventy-fifth anniversary of the founding of the college, in 1829. The rest of the ticket nominated includes: Second Vice President, William Jay Schieffelin; Third Vice President, Herbert D. Robbins; Trustees to 1907, John R. Caswell, Otto P. Amend, Oscar Goldman, Adolph Henning, and Charles H. White.

Examination for Superintendent of New State Hospital.—Five candidates for appointment to the post of superintendent of the new State Hospital for the Treatment of Consumptives were subjected on Feb. 13 to an actual test of their ability to deal with tuberculosis. The candidates, who are all physicians of at least six years' experience in general practice, and of one year's service in a hospital, were taken to the Albany Hospital by the Board of Examiners, where each was required to examine and discover the physical condition of five patients. The institution, which will be ready for occupancy within a short period, is located at Raybrook, in the Adirondacks.

Flower Hospital's Physical Therapy Clinic.—This hospital has recently put in a thorough equipment of electro-therapeutic and mechano-therapeutic appliances.

Bacteria and Money.—New York money may not be so dangerously dirty after all. Dr. Thomas Darlington, President of the Health Department, last week received a verbal report from Dr. Park, the bacteriologist who is developing germ cultures from old bills and copper coins, and the President was relieved to hear that if there were any malignant germs in the money they were not to be discovered under the microscope. Neither Dr. Darlington nor Dr. Park were satisfied, however, the money does not figure in the transmission of disease, and in consequence the investigation is to be carried on to a finish. Washes have been made from the cultures and they will be injected into rabbits and guinea-pigs. Indeed, that course of investigation has already been begun, and there are several of the little animals with the extract of money in their veins under observation. "It will take several weeks," said Dr. Darlington, "before the disease germs, if they exist, take effect upon the animals which are being used in the experiment. For that reason it cannot positively be said that money is not a medium for the propagation of contagious diseases. Dr. Park is carrying on a most important experiment with copper coins. It is a question, in my mind, whether copper does not exercise a fatal effect on germs of all kinds. Dr. Park has placed germ cultures on a number of these small coppers and is watching them to see if they survive."

Report of Adirondack Cottage Sanitarium.—We are pleased to acknowledge the receipt of the Nineteenth Annual Report of this institution, which is a modest little booklet given over largely to statements of cases treated, with their results, and to acknowledgment of moneys received from friends of the institution. There is no evidence of vain boasting or theatrical display, nor does the pamphlet abound in high sounding phrases telling how great a work is being done by this pioneer among consumptive sanitaria. All that is left to the reader to be gathered from actual results. In grateful recognition of the kindnesses of its supporters, the report says:

"Again, as in the past, the deficit in the yearly running expenses has been met entirely by voluntary contributions of the Sanitarium's friends, and it is a source of congratulation that the expense to the patient, $5 a week, has been kept the same for twenty years, in spite of the greatly increased cost of operating the institution due to the growth and expansion of the work in many directions, the perfection and development of methods, the many additional advantages the patients now enjoy, and the higher cost of fuel, provisions, and supplies."

During the past year 298 patients have been treated, which is the largest number since the establishment of the Sanitarium. To find out as nearly as possible the benefit derived by its patients from the course of treatment outlined and also as a matter of scientific statistical interest, Dr. Lawrason Brown, the Resident Physician, has made a very exhaustive inquiry into the records of previous cases. "Of 1,500 cases which have been discharged from two to seventeen years ago, 334 could not be traced, leaving 1,066 which have been traced. Of these, 46.7 per cent. are still living. Thirty-one per cent. are known to be well at present; in 6.5 per cent. the disease is still arrested; 4 per cent. have relapsed; 5.2 per cent. are chronic invalids, and 53.3 per cent. are dead. Thus we learn that 31 per cent. of all cases discharged from two to seventeen years ago have remained well." This is certainly very encouraging when we consider how terribly fatal the disease is considered to be, not only by the laity but by the profession as well; and it is likely if the present rate of progress continues that experience derived from the treatment of an increasing number of patients for another seventeen years will be the means of doubling this percentage.

Especially commendable is the fact that the institution is primarily for those in very moderate circumstances. The rich can always be benefited for a time at least by careful nursing, change of climate, and all the safeguards that go with wealth and luxury; but here we have a place where wealth is actually a bar to entrance, and the primary object still is, as it was conceived in the mind of its founder at the beginning, to provide for the care of the nominally poor.

Summing up the year's work the following facts are noted:

"The work done by the Sanitarium during the past year may be summed up briefly as follows: Two hundred and ninety-eight patients have been treated. To two hundred and fifty-seven of these the institution has furnished the best possible means of restoration to health at a nominal cost, and to forty-one entirely free of cost to them." The names of many of America's most widely known philanthropists occur in the record of beneficers, and not the least among these is that of the indefatigable physician to whom the whole world owes a debt of gratitude in his zeal for the stamping out of tuberculosis on this side of the Atlantic.

Bad State Charity Laws.—The annual report of the State Charities Aid Association to the State Board of Charities was made public last week. It contains, among other things, a review of the bills that came before the legislature last year affecting the State's charitable institutions. It says that the legislative session of 1903, "while less momentous to the wards of the State than that of 1902, was characterized by a considerable number of important

measures affecting the welfare of the poor in their homes and public dependents in institutions." One of the most disastrous measures passed by the legislature and signed by Gov. Odell, the report says, was that which forbids the establishment of any hospital or camp for the treatment of patients suffering from pulmonary tuberculosis in any town without the consent of the town's governing board and of the Board of Supervisors of the county in which the town is. "The effect of this law," says the report, "is to make it impossible for any city in the State, or any fraternal order, charitable society or philanthropic individual to establish a hospital, camp or other establishment for the treatment of consumptives outside the city limits, except under conditions which are practically prohibitive." The report says that in the opinion of the association the country districts were sufficiently protected by the laws then existing, which forbade the establishment of any institutions for consumptives in the State without the approval of the State Board of Health and which laid down other restrictions. The report asserts also that the disease, instead of increasing, decreases in the districts in which institutions for its treatment are located. The report adds:

"By the passage of this law the thousands of sufferers from pulmonary tuberculosis in this State may be prevented from receiving the care and treatment which would result in their cure or improvement. More than 60 per cent. of the people of this State live in cities of 40,000 inhabitants, and it is among the poor in cities that the disease is most prevalent. It is deplorable that the interests of these unfortunate people should be subordinated to local property interests which were already amply protected by previously existing laws." Speaking of Bellevue Hospital the report says: "Steadily and by no means slowly the morale of Bellevue Hospital has followed in betterment the refreshing change in the appearance of its wards and halls, with constant effort to lay the foundations for a change in the attitude of the public toward the 'Bellevue' of the sensational press—if anything but the upbuilding of the hospital can accomplish this. The board of trustees has made gratifying progress also in its endeavor to secure a new and adequate plant for this hospital."

The report emphasizes the urgent need for new State institutions for the feeble-minded, the idiotic and the epileptic, recommends that the State Board of Charities should have the power to transfer inmates from one State charitable institution to another, and to determine the capacity of each institution, and indorses all efforts that are being put forth to improve the industrial features of the State's charitable institutions.

PHILADELPHIA.

New Medico-Chirurgical Hospital Opened.—The new Medico-Chirurgical Hospital, rebuilt after the explosion of a water heater one year ago which virtually ruined the old building, is now ready for the reception of patients. It is the best that modern hospital construction and equipment can furnish. General wards, private wards, and private rooms are included in the building.

Medical Inspectors Appointed.—The forty additional assistant medical inspectors have been appointed by the Bureau of Health and been sworn into office. The districts are determined by ward lines. In several instances where the wards are small one inspector has charge of two wards; in case of the larger wards, two or even three inspectors are assigned to a ward. The inspectors will look after cases of contagious diseases, inspect schools, and do the city's vaccine work. Instruction in the shape of short lectures will be given the members of the corps until they are thoroughly conversant with their duties.

Society for Prevention of the Spread of Tuberculosis.—At a recent meeting of this society an active campaign for the prevention of the spread of tuberculosis and other contagious diseases was outlined. Among the measures proposed were the cleaning of streets only between midnight and six o'clock in the morning with thorough wetting of the streets before cleaning, withdrawal of all trolley cars with upholstered seats, heating of cars in cold weather, and the enforcement of the anti-spitting ordinances. It was decided to make an exhibit at St. Louis of charts, maps, and statistics relative to the prevalence of tuberculosis in Philadelphia.

Smallpox Statistics.—The returns of smallpox cases throughout Pennsylvania for January show a considerable decrease as compared with those of December or November. In Philadelphia there has been no lessening in the disease, and the death rate for January was nearly three times that for November. During the three months mentioned there were in the State 2,456 cases of smallpox with 297 deaths. About two-fifths of the cases and two-thirds of the deaths occurred in Philadelphia.

The Administrative Control of Tuberculosis.—Dr. Hermann M. Biggs, of New York, in an address on the above subject before the Phipps Institute February 15, gave a résumé of the work accomplished along this line by the New York Health Department. He showed in a most convincing array of statistics that the spread of the disease had been checked by the methods employed in that city and also stated that any municipality could accomplish similar results if active measures were employed. That no new discoveries are being taken advantage of in New York was made emphatic by Dr. Biggs, who said at the outset that it was remarkable that so little had been done in controlling tuberculosis when we consider that practically all we now know regarding the sanitary measures necessary were known fifteen or twenty years ago. Results come from putting into practice the things that are commonly known. Mayor Weaver, who presided at the meeting, said that Philadelphia was ready to put in practice the methods shown to be so successful in New York whenever the people, or even the medical profession, of the city were ready for their adoption.—See MEDICAL NEWS, Special Article, this week.

Changes in the Intercostal Muscles in Pneumonia and Pleurisy.—At the meeting of the Pathological Society of Philadelphia, January 28, Dr. W. M. L. Coplin read a paper on this subject, stating that no important studies of the relations, if any, existing between the intercostal muscles and inflammations of the lung and pleura had been carried out. In this preliminary note he gave the findings in seven cases that have been studied. Of these, two were croupous pneumonia, two tuberculous pleurisies, two acute pneumococcus pleurisies, and one chronic empyema. The changes observed in the muscles were as follows, though their order of occurrence may not be the same as given: (1) Granular degeneration or cloudy swelling of the muscle fibers. This is probably a part of the systemic action of toxic bodies circulating in the blood; (2) the muscle fibers are dissociated, edema is present, but there is but little

fibrin containing substance. Groups of muscle fibers and bundles show changes that cannot be differentiated from the hyaline degeneration described by Zenker as occurring in the muscles of the abdominal wall in cases of typhoid fever; (3) the preceding change is increased and fibrin and leucocytes (mainly mononuclear) become abundant. Bacteria are often conspicuous. From the specimens studied it is inferred that the necrotic material thus formed is removed and sclerosis results. In the chronic empyema newly formed and forming fibrous tissue is present and there is conspicuous fatty infiltration of the muscle. This seems to be due to the long-continued infection of the pleura. The pathogenesis of the condition described is not entirely clear but is probably explained by the lymph tracts of the muscle carrying off toxic material from the pleura. The alteration in physical sounds over the affected area, the occurrence of intercostal neuralgias during the course of pneumonia, etc., suggest themselves from the study of the muscle changes thus briefly outlined.

Honors to Dr. Wiggin.—Dr. Frederick Holme Wiggin, of New York, at the invitation of the Montgomery Gynecological Society of the Jefferson Medical College, delivered an address on "Some Practical Points in Abdominal Surgery with Special Reference to a Simple Technic for Appendicectomy and Intestinal Anastomosis," before the student body of that Institution, in the lecture room of the college, on the occasion of the Annual Meeting of the Society, which was held on the evening of Feb. 2. Later in the evening Dr. Wiggin was entertained at a dinner given by the Society at the Colonnade Hotel in his honor.

CHICAGO.

Addition to Presbyterian Hospital.—The Directors of this institution are considering plans for the construction of additions to the hospital, which will include a surgical pavilion and a new out-patient dispensary for the poor. Part of the $500,000 necessary for these additions has already been pledged.

Work of the Chicago Pasteur Institute.—The Director of this institute in Chicago reports that since the institute was opened, July 2, 1890, 2,026 patients have received the anti-hydrophobic treatment. Of these, 1,807 had been bitten by dogs, 76 by horses, 57 by cats, 19 by cows, 18 by skunks, 25 by other animals, and 22 were infected by hydrophobic human beings. Of individuals bitten by animals absolutely known to have been rabid, 982 were treated; of patients bitten by animals presumed to have been rabid because of symptoms of disease during life, 776 were treated, while 268 cases were cared for in which rabies was suspected. Only 7 deaths were reported, a mortality of 0.34 per cent. Six individuals abandoned treatment, two of whom subsequently died from hydrophobia.

Examination of the Urine and Segregated Urines as a Means of Diagnosis in Surgical Diseases of the Kidney.—Dr. M. L. Harris read a paper on this subject before a recent meeting of the Chicago Medical Society, and among other things he said that as most of the so-called surgical affections of the kidneys are due to microorganisms, it is important to know the kind of infection present. This means in most cases a bacteriological examination by the usual culture and tinctorial methods. The essential point in this connection is the obtaining of the urine uncontaminated with organisms from external sources. In the female the urine should invariably be obtained by the use of a sterile catheter introduced after proper cleansing of the parts. In the male the same procedure may be used, or if there has been no disease of the lower urinary tract, it is sufficient to urinate, after thoroughly cleansing the urethral opening and discarding the first portion that escaped into a sterile receptacle, from which inoculations should be made immediately. If there has been an infection of the urethra, this canal should be cleansed as thoroughly as possible by irrigation before attempting to collect the urine. The microorganisms most frequently found are the *Bacillus coli communis, Bacillus tuberculosis,* and various staphylococci and streptococci, the *Bacillus proteus,* and rarely the *Bacillus typhosus* and *Diplococcus pneumoniæ.* The effect of the presence of these bacteria on the reaction of the urine varies, so that the reaction of the urine becomes a point of some diagnostic significance. To be of value, however, the reaction must be taken at once, as an acid urine may become more acid or change to alkaline within a short time after it is passed, owing to external contamination. The normal acid reaction of the urine is not changed by the colon bacillus, the tubercle bacillus, or the streptococcus, while the staphylococci and the *Bacillus proteus* render the urine alkaline, owing to the decomposition of urea with the formation of ammonium carbonate. In the presence of an alkaline urine it should be determined whether the alkalinity be due to the so-called earthy bases, to alkalies introduced medicinally, or to ammonia. If due to ammonia, it indicates an infection with some urea decomposing organisms. The tubercle bacillus does not grow on the usual culture media, but is recognized by its peculiar tinctorial properties. In practically all cases of tuberculosis of the kidneys this bacillus may be detected in the urine, if a sufficient number of carefully conducted examinations be made. The possibility of confounding it with the smegma bacillus should be borne in mind and the proper precautions taken. The use of the microscope is absolutely necessary in order to detect the presence of pus or blood in the urine in anything but the most apparent macroscopic quantities. This statement would not have been deemed necessary, did not one still occasionally hear a physician speak of the cloudiness or deposit due to precipitated urates as pus, or the high-colored cloudy urine of concentration as due to blood, simply on their appearance. The presence of pus in the urine is always an indication of an infection of some portion of the urinary tract, unless it has ruptured into it accidentally in some neighboring organ. While the kind of infection should always be determined when possible by the culture methods, as already mentioned, still the following points are of practical clinical importance:

A pus-containing urine, alkaline owing to the presence of ammonia, is probably due to the presence of the staphylococcus or proteus. A culture obtained from an acid, pus-containing urine is most commonly the colon bacillus. An acid or neutral pus-containing urine which remains sterile on ordinary culture media is almost always due to tuberculosis, even though no tubercle bacilli are found on examination. Mixed infections, of course, may exist. Blood in the urine, when it comes from the kidneys, is usually due to malignant tumor, tuberculosis, or renal calculus. The essayist then considered the blood in cases of malignant tumor, tuberculosis, renal calculus, etc. The most careful ex-

amination of the urine often furnishes sufficient data upon which to base a correct diagnosis as to the location of the lesion. The history will frequently make up the deficiency, but only too often this is also wanting, when recourse must be had to other means. These are mainly cystoscopy, or inspection of the interior of the bladder, and the collection of the urine directly from each kidney separately. The use of the cystoscope is absolutely essential to a correct diagnosis in many diseases of the urinary tract. Collecting the urine directly from each kidney separately is the greatest advancement which has been made in the diagnosis of surgical renal affections in modern times. There are two practical methods of accomplishing this, namely, the use of the urine segregator and catheterization of the ureters. Each of these methods has its advantages and its limitations. After quite an extensive experience with the segregator, he stated that its intelligent use in suitable cases furnishes results which are reliable and gratifying. It does not take the place of the cystoscope, but should be used in connection with that instrument. It does not supplant entirely catheterization of the ureters, as there are cases in which the latter is the more suitable, but that it does have a very useful field is certain. The advantage of collecting the urines directly from the kidneys is very great. We are thereby not only able to exclude entirely the lower urinary tract, but to determine whether the disease affecting the kidneys is bilateral or unilateral, and if the latter, which side is involved. No diagnosis of these affections is now complete without these facts. An examination of the urine in the surgical diseases of the kidneys must take into consideration not only the pathological constituents but also the comparative amounts of normal constituents eliminated by each kidney, in order that the proper treatment may be carried out and a correct prognosis given.

Efforts to Prevent and Suppress Typhoid Fever.—Rules and regulations have been prepared by the Illinois State Board of Health with reference to the prevention and suppression of typhoid fever. They were formally adopted by the board at its annual meeting, copies of which have been sent to all the newspapers in the State, and to every county, township, village and city health officer, and they will also be distributed among the people by the local health officers.

Antitoxin and Diphtheria.—Proof that antitoxin saves hundreds of lives in Chicago each year is offered by the Health Department in its weekly bulletin. The use of antitoxin in the treatment of diphtheria was begun by the city nine years ago, and since that time the mortality has been 6,088, while during the nine years before 11,488 persons died. The decrease has been 5,400, or 47 per cent., while the population has increased nearly 600,000, or 52 per cent. Considering population, the decrease in deaths is given as 63 per cent.

GENERAL.

New Sewerage for Baltimore.—The city of Baltimore is constructing a sewer system which will cost $10,000,000. The discharge of all sewage into Chesapeake Bay is to be actively prohibited.

An Arctic Health Resort.—A curious health resort is about to be established in Lapland, way beyond the Polar Circle, according to one of our Swedish exchanges. The intention of the Government is to erect a sanitarium on the shores of Lake Torne, a long and beautiful sheet of water at Wassijauve, the end of the Ofote Railroad. The latter, by the way, is in itself a curious institution in that in a distance of 121 miles it boasts of only one solitary station. This is not anywhere near any human habitation, but right on the line between Sweden and Norway, and it was erected only for the requirements of the Customs Office. The sanitarium would be an ideal one for people with weak nerves who need absolute rest. Aside from the small settlement at Wassijauve the country is absolutely void of any signs of human existence, except for a few Laplanders who, with their herds of reindeer, pass through once in a while. Guests at the Arctic sanitarium will have for their only object of interest, aside from the scenery, a scientific station which has been erected by the Government out of funds subscribed privately by scientists and laymen interested in the object of the station. The observations and investigations to be conducted here will be various. In Summer biological, geological, botanical, entomological, and other researches will be made, while at all seasons meteorological, magnetic, and other observations are to be made. The station is a solidly built block-house containing seven rooms, and it is proposed to build the sanitarium in the same way.

Christian Science and the Law.—"No clear case of 'Christian Science' killing has reached the public attention in the East of late—a fact which may prove almost anything except that there haven't been any killings," says the *Times*. "Elsewhere, however, the 'healers' have been less successful in getting their victims quietly under ground, and there is peculiar interest in a case cautiously but comprehensibly reported by the papers in Portland, Ore. It seems that there the daughter, a child three years old, of one James MacKenzie accidentally poisoned herself with wintergreen oil that had been carelessly left within her reach after use for some domestic purpose. The father had been cured of a 'stomach trouble' by an Eddyite neighbor two years before, and therefore, when the baby grew pale and still he sent for the convenient wizard. The usual mummeries were performed and the usual cure announced. Later in the night it became obvious even to a 'Christian Science' father that the child was dying, and he sent for a doctor. At the subsequent inquest the doctor testified that it was probably too late to save the baby's life, even when the wizard was called in. That contented the Coroner's jury, and it brought in a short, safe verdict of accidental death by poison self-administered. Thereupon there was great joy in the ranks of the deniers, and their local spokesman gravely proclaimed that from the testimony given at the inquest it was evident that 'Christian Science' had done more for the poisoned child than materia medica, whatever that may mean, was able to accomplish! Well, the little girl did live for some time after the incantations were chanted over her, and did die soon after a regular physician took the case. The argument is certainly a strong one—for imbeciles. It is a little queer, though, that the wizard failed, since he declared at the inquest that 'Christian Science' is easily effectual in all poisoning cases, and that he had saved one of his own children from the effects of a big dose of carbolic acid. It is really a wonder that the jury didn't hold the doctor to trial for manslaughter, if not for outright murder."

OBITUARY.

Dr. John Mercer Adler died of apoplexy in Devon, near Philadelphia, on February 11. He was seventy-six years old, and was one of the most prominent medical, literary, and art representatives in the city. Dr. Adler was born in Georgetown, D. C., and was edu-

cated in Georgetown College and Princeton University. Studying medicine at Columbia University, he was graduated with the class of 1847. Immediately after this he went to Colon, being connected with the Panama Railroad. Three years later he returned to this country, going to Davenport, Ia., as chief physician of the Military Hospital there, and was in charge during the entire Civil War. With the close of the war he came to Philadelphia. He was prominently connected with a number of leading medical societies, was the author of medical works, and was also actively engaged in life insurance organizations.

Dr. Max G. Rafael, who served as a surgeon in the Union navy during the Civil War and who was formerly a Deputy Coroner, died suddenly last week of apoplexy. He was in his sixty-eighth year. Dr. Rafael was born at Salem, in the Province of Baden, Germany. He came to this country at an early age and studied medicine at the Humboldt College, St. Louis. When the Civil War broke out he was commissioned a surgeon in the navy and served under Admirals Farragut and Porter. At the close of the war he began to practice medicine in New York. He was a deputy under Coroner Brady.

Dr. Emil Alexander de Schweinitz, Chief of Division in the Department of Agriculture and a noted bacteriologist, in which science, although yet a comparatively young man, he had made many original investigations, died in Washington last Monday of uremia. In recent years he had been Dean of the Medical School of the Columbian University. He was born at Salem, N. C., Jan. 18, 1866, being the son of Bishop E. A. de Schweinitz. He studied at Nazareth Hall and Bethlehem, Pa., and was graduated from the University of North Carolina in 1882, afterward receiving the degree of Doctor of Philosophy at Göttingen, Germany, and of Doctor of Medicine from the Columbian University. He was United States delegate to the Fourth International Congress on Tuberculosis at Paris in 1898, and in Berlin the following year. He held the same appointment to the International Medical Congress and Congress for Hygiene at Paris in 1900, and published many papers on bacteria, disinfectants and hygienic problems, and on the various antitoxins, tuberculosis being perhaps his especial study. He was a member of the Metropolitan, Cosmos, and Chevy Clubs, and of various scientific, chemical, and bacteriological societies, both American and foreign.

Dr. August Kreibiel, of New York, died last week. He was born in Bavaria, Germany, in 1839, and came to America in 1854. He returned to Germany and studied medicine in the University of Würzburg and was graduated. He again came to America and for twenty-five years was actively engaged in practice in this city, returning fifteen years ago.

Dr. Frank S. Bok, a prominent physician and Odd Fellow, of Pulaski, and Coroner of Oswego county, N. Y., for ten years, died in Oswego last week from pneumonia, aged thirty-six years.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, January 29.

PHYSICAL DETERIORATION OF THE BRITISH PEOPLE—THE LIGHT CURE IN LONDON—THE MENTAL AND MORAL EFFECTS OF THE SOUTH AFRICAN WAR—AN ANTI-CIGARETTE CRUSADE—NURSES FOR SICK DOGS.

As has been mentioned in previous letters, the British people have recently awakened to the fact that the standard of national physique is seriously deteriorating. This is shown by the large proportion of stunted and weedy lads found among those who offer themselves for enlistment in the army, and the vast amount of disease and deformity among the rising generation in populous cities pent. It is tolerably certain that unless the *urbipetal* tendency of the men and women who in a physical sense form the backbone of our population can be checked, and unless wholesomer conditions of life can be provided for the denizens of our town slums, the British people will in a century or two, perhaps less, degenerate into a race of sickly dwarfs, with the marks of inherited disease and depraved habits writ large upon them. Even amid the din of the great fiscal fight the voices of some who are striving to find a means of preventing a national danger have reached the ears of the powers that be. A special committee is now sitting and taking evidence on the subject. But such committees are mere safety valves for the Government in ebullitions of popular feeling. By the time the Committee has brought its labors to a close, the excitement has probably died down, and the report is quietly relegated to one of the pigeonholes where so many schemes of reform repose, as in a limbo of stillborn souls. It appears to be intended that the committee shall play the part of John the Baptist by preparing the way for a Royal Commission. But Royal Commissions, too, are often mere Greek choruses, proclaiming moral sentiment and giving good advice to which no one pays attention. A more hopeful sign is that the medical profession has been aroused to action in the matter. A petition has been drawn up and has already been signed by more than 8,000 medical practitioners, including Sir William Broadbent, Sir Lauder Brunton, Sir Thomas Barlow, Sir Victor Horsley, Sir William Macewen, Sir Henry Thompson, Sir Samuel Wilks, and the Presidents of the Royal Colleges of Physicians and Surgeons, which it is intended to present to the Central Educational Authorities of the United Kingdom. These authorities are urged to consider "whether it would not be possible to include in the curricula of the elementary schools, and to encourage in secondary schools, such teaching as may, without developing any tendency to what is unwholesome, lead children to appreciate at their true value healthful bodily conditions as regards cleanliness, pure air, food, drink, etc." Attention is called to what is already being done in this way in English-speaking countries, especially in the United States. It is pointed out that much of the degeneracy, disease and accident with which medical men have to deal is directly or indirectly due to use of alcohol. Inasmuch as a widespread ignorance prevails concerning not only the nature and properties of that substance, but also its effects on the body and mind, the educational authorities are urged to include in the school teaching of hygiene elementary instruction at an early age on the nature and effects of alcohol. The intention of the petition is admirable, but a cynical critic might say that it leaves out of account the innate depravity of what Matthew Arnold called "the average sensual man." It is stated in the petition that about twenty-two million children are being educated under this system in the United States; it would be interesting to learn that the amount of drunkenness has been appreciably reduced in consequence. It may be said that we must wait till the next generation before we can estimate the practical effect of the teaching. But in this country it has not been found that the diffusion of education has greatly reduced either vice or crime. A fierce struggle has been made to retain religious instruction in the program of elementary schools, but this has had no perceptible influence on the growth of indifference in regard to re-

ligious belief and practice in the working classes which, according to the testimony of all observers, is a fact that Carlyle, if he were to rewrite his famous essay, would place among the "characteristics" of our time. A knowledge of the effects of alcohol on the body, even if it could be given in any real sense to young children, would probably have no more effect in practice than a knowledge of the evil effects of immoral acts of other kinds has on the conduct of the majority of young men. The true remedy, it seems to me, is to be found in the State interference which Herbert Spencer taught us to view with such suspicion, but which in a matter so nearly affecting the welfare and even the existence of the nation, is surely justifiable even from the standpoint of abstract philosophy. Already the State does much for the children of the poor; and if they are not merely poor, but criminal, it takes them in hand altogether and brings them up in institutions away from the corrupting influences of their home environment. In the formation of habits of self-restraint and the development of a sense of moral responsibility lies the hope of the production of useful citizens out of the raw material that now goes to the making of degenerates. Early education in State institutions, followed by compulsory service in the army or navy, would do more to check the deterioration of the British people than the teaching of hygienic maxims to children who see them defiantly disregarded in every act of life by those around them.

The prospectus of a Light Cure and Therapeutic Institute was recently issued. The purpose of the Institute was stated to be to provide London "with greater facilities for electrical treatment than are at present available at the hospitals." The capital was said to be $60,000, which, considering the heavy expense of installing Finsen, Roentgen and similar apparatus, strikes one as very inadequate for the purpose. It is not apparent whether the scheme is intended to be partly charitable, or a manifestation of philanthropy at 5 per cent. To-day comes an announcement of another enterprise of the same kind. A "Red Cross" Light Cure and Electrical Institute is said to have been established in a fashionable quarter of London. The promoters say "We shall expect patients to be sent to us just as they are sent to Bath or Wiesbaden by their own medical men who know the value of this wonderful cure." It may be gathered that these institutes are to be run by lay directors, who may or may not employ a medical practitioner to look after the patients. Often such establishments induce a member of the medical profession whose poverty, but not his will, consents to the degrading association; sometimes they hire a man whose name has been struck off the Register for professional misconduct. There is a "boom" in light here, for which the London Hospital is largely responsible. The Queen some years ago presented a Finsen lamp to that institution, a circumstance which the very wide-awake Governors took care to advertise early and often. They have gone on doing so ever since. I see in the *Westminster Gazette* of this day a statement that the London Hospital has now an installation of eight lamps with thirteen nurses told off to give their exclusive attention to the working of them. "Great results have been obtained, and patients have come from all parts of England to be cured." Similar statements are made in the newspapers from time to time, evidently with the intention of creating an impression in the public mind that the London Hospital is the true shrine of Light, where alone sufferers from lupus can hope for cure. The credulous public is assured that the treatment is *certain* and that it is *absolutely painless*—both statements, as all who know anything of the subject are well aware, being absolutely false. The "great results" referred to have to be taken on faith, as no authentic record of them has so far been given to the world. From what one hears, it would seem that the "greatness" of the results lies in the value got out of them as advertisements, rather than in the good done to the patients. Special departments for the light treatment have now been established in many hospitals, both in London and in the provinces. The results of the method as carried out in this country, however, are by no means so brilliant as those reported by Finsen and his colleagues at the Lys Institute at Copenhagen. The difference may partly be explained by the difficulty of getting English nurses to give themselves with sufficient devotion to work, which is not only tedious, but trying to the nervous system. This, however, is not the whole secret, for at the private institution under the direction of the well-known dermatologist, Mr. Malcolm Morris, who was the real pioneer of the method in England, the treatment is in the hands of a most capable Danish nurse, trained at Copenhagen; nevertheless, the results—which Morris and his assistant Dore have published with commendable frankness—though fairly satisfactory, will not bear comparison with those claimed by the Danish physicians.

To the January number of the *Journal of Mental Science*, just published, Dr. R. S. Stewart, of the Glamorgan County Asylum, contributes a paper on the mental and moral effects of the South African War on the British people. During the early months when news of defeats and what Lord Roberts afterward called "regrettable incidents" came thick and fast, the emotions felt by us were naturally extremely painful, but there was no note of despondency, and with the spirit of old Rome the nation was determined that the republic should suffer no detriment. At that time there was a notable decrease in the amount of crime of all kinds throughout the United Kingdom, showing an improvement of moral tone in the nation. A "disinclination to matrimony" was also noticeable in the dark days of Ladysmith, Maggersfontein, Colenso and Spion Kop. The national depression even affected the birth-rate; the annual reports of the Registrars-General for both England and Scotland for 1900 contain the statement that the birth-rate for that year was the lowest ever recorded. From a large mass of statistics which he has collected, Dr. Stewart concludes that while the war cloud lay heavy and black over the British people, the nation, as a whole, had its criminal propensities checked; there was a "lessened disposition toward all forms of self-indulgence, a heightening of the respect for the lives and property of others, and a lessened disposition to shirk the troubles and responsibilities of life." Gradually, however, the effect produced by our reverses passed away until by the end of the year it had vanished, and, morally speaking, our last state was worse than our first. I confess that Dr. Stewart's figures do not seem to me to prove much. But the most superficial observer could scarcely have failed to notice that the war—especially when the turn of the tide came—had a decidedly brutalizing tendency not only on the mob, but on many persons of education.

A manifesto bearing the signatures of many leading medical men—among them being Mr. John Tweedy, President of the Royal College of Surgeons of England—as well as bishops, Members of Parliament, and headmasters of schools, has recently been issued with the object of calling the attention of the public to the evils of cigarette-smoking by children. Reference is made to the great increase among the young in recent years of a habit "which is undoubtedly doing much to undermine the health and ruin the character of many English

boys in the various grades of society." The hope is expressed that every possible effort will be made to deal with what the signatories of the manifesto believe to be a very serious hindrance to the young life of the nation. Almost simultaneously with the issue of this document comes the announcement that there is to be a crusade against the cigarette in Birmingham where a conference on the subject is being held this day (January 29). The movement has the support of many leading members of the medical profession in Birmingham.

The professions open to women in this country are already overstocked, and "bachelor girls" are looking out for fresh fields and pastures new. Those who have a vocation for nursing and think the conditions of admission to that profession too arduous may find an outlet for their natural aptitude and energies as ministering angels in the tending of sick dogs. In the eyes of a considerable section of the British public the comfort of a dog is of considerably greater value than a human life; ladies who take up this interesting branch of nursing will, therefore, have the satisfaction of knowing that they have the privilege of doing what many people believe to be the noblest work that it is given to a mere human being to do. The Dogs' Protection League some time ago established what is virtually a hospital for dogs. A visit to the kennels, we are assured, is like walking through the ward of a hospital, for fair nurses are in constant attendance on the canine invalids, who lie in swaddling clothes, or if convalescent, are allowed to go about the "ward." An official of this philocynic institution described his patients as being "as bad as human beings." "Some of them," he said, "have to be nursed all night long, or they would tear away their clothes and do themselves any amount of harm." The League has, it is stated, received thousands of dogs since it began. It has always a staff of trained nurses in attendance, and the "hospital" is under the direct supervision of two well-known veterinary surgeons. A lady who wishes to adopt the profession of a dog nurse is taken on probation and receives a thorough training in the speciality. Then she goes out to whatever cases she may be called to. She is taught how to prescribe for a sick dog, physic it, diet it, and clothe it, in fact, how to adapt ordinary hospital nursing to the relief and care of sick dogs. Dog nursing is said to be extremely popular among ladies, and there is nothing at all improbable in the statement.

TYPHOID EPIDEMIOLOGY.

To the Editor of the Medical News:

Dear Sir: In view of the frequency with which typhoid epidemics have of late appeared in various parts of the United States, and of the alarming proportions which some of them have assumed, it has seemed to me that it might be of interest to your readers to learn of the manner in which these epidemics are being combatted in Germany. I had the good fortune to be appointed "Assistent" in a laboratory established last summer for the specific purpose of studying, and, if possible, of cutting short the epidemic which was at that time raging in one of the districts of Elsass, and thus had an opportunity of observing, at very close quarters, the methods and theories of the movement against typhoid in Germany. That it is really a "movement," a national movement, undertaken in the spirit of a German army campaign, lends it an interest and an importance which hardly attach to the sporadic skirmishes with local epidemics, as they are carried on in all other countries, including our own, organized generally in great haste and frequently under quite unfavorable circumstances. In Germany, however, the entire machinery of the Imperial Government has been set in motion, and a very considerable fund has been made available, to carry on a continuous and well-planned crusade against the ravages of the disease; that the entire organization is under the control of such men as Koch, Flügge, and the Surgeon-General of the Army, gives some notion of its intention and of its efficiency.

It was toward the middle of July that I first received intimation through the Professors in the University of Strassburg that I might have the regular position of Assistent in a "field-laboratory"—or "fliegende Station," as they called it, on the analogy of an easily moved, temporary, army-garrison—which was soon to be established in Diemeringen, a village about 2½ hours from Strassburg. I had already had an opportunity of seeing how the work was conducted in the large permanent stations, with well equipped laboratories, situated in the midst of a great city, such as was the Hygienic Institute of the University of Strassburg. Of these there were at that time four in Germany, namely, one in Trier, presided over by Prof. Frosch; in Metz, by Conradi; in Saarbrücken, by von Drigalski; and in Strassburg, by Profs. Forster and Ernst Levy, all of them with perfect facilities, and a large body of assistants. Under such circumstances, the work differed only in details from that carried on by efficient boards of health in all large advanced cities. The conditions which were to be confronted by the new station in Diemeringen were, however, of an entirely different kind. Here was a squalid country village, of perhaps a thousand inhabitants, situated in one of the most neglected regions of the Empire, Elsass, which has alternately been the stepdaughter either of Germany or of France. Around this village, typhoid had become epidemic, and in some of the hamlets had attained the proportions almost of a scourge, or a pest, inasmuch as ten per cent. of the inhabitants were suffering from the infection. This was an opportunity for which the large plan on which the movement was organized had made provision, although no occasion had previously arisen to test its practicability. Diemeringen was to be the first, experimental, flying station. The epidemiology and bacteriology of the disease were to be worked out in an improvised laboratory on the spot, but according to exactly the same requirements and regulations as had been prescribed for the chief stations in the larger cities. That these requirements were by no means trivial will subsequently become evident. I was very much interested in seeing how this experiment would turn out, and therefore I determined to accept the position proffered me.

About a week was consumed in arranging all the preliminaries. A laboratory "Diener" had to be engaged, and taught the rudiments of his work. An initial stock of culture media had to be made up for use during the first few days. And, most important of all, a list of necessary articles had to be prepared, and sent to the firm of Lautenschläger, in Berlin, who were to forward the supplies as rapidly as possible to the seat of operations. Finally, however, everything had been arranged, and on one afternoon in the early days of August we set out from Strassburg, and betook ourselves to Diemeringen. Our "staff" consisted of Dr. Kirstein, first assistant to Prof. Flügge in Breslau, and previously assistant to Eberth in Halle, myself, and the laboratory Diener. We reached the village late that night, and it made upon me, at least, an impression which I shall hardly forget. There was neither carriage nor wagon to meet us; however, my host of the "Eisenbahn Hotel" had provided a man with a wheelbarrow, in which our belongings were trundled up to the hostelry. So, through the long,

narrow, winding street of Diemeringen, its only thoroughfare, we wended our way. On each side of us were the low shanties, which expressed the poverty of the inhabitants, and from which issued occasionally the grunting and lowing of the beasts that shared them with their human owners.

Our work now began in earnest. The Government had leased for our use a fairly large building, with two floors and an attic, and this was dedicated to laboratory purposes. Our home was in the hotel. The house was sufficiently large to enable us to set aside one room for the secretorial work, which was considerable in amount, inasmuch as the details of every case had to be recorded and tabulated; another room for microscopic work; a third room for the sterilizers; another, which was fitted by the local plumbers with a rude sink, as a washroom; and, finally, one as a home for our animals. It took no little pains to get things to rights for the six weeks' stay which we proposed to make. Furniture had to be supplied by the carpenters, and was designed by Dr. Kirstein, to be as simple as possible, and, at the same time, to be easily portable, since it was expected that the station with all its supplies would be transferred from Diemeringen as soon as its work had been accomplished there, to some other typhoid center, as was, indeed, subsequently done. The laboratory equipment, which had been gotten together by Lautenschläger, at a cost of between 3,000 and 4,000 marks, was in its way ideal for the purpose. We had expected great difficulty with incubators and sterilizers, knowing that there was, of course, no gas in Diemeringen. For the dry and steam sterilizers, the firm provided two petroleum apparatuses, known as "Juwel," of a type commonly used in Germany in the kitchen. They are so designed that the vapor, and not the petroleum itself, ignites, and they maintain an extremely high degree of heat for a considerable time. Thus, the hot air sterilizer could be heated to 180° F. within fifteen to twenty minutes, and the steam sterilizer could be kept in constant operation for a whole day without refilling. The problem of maintaining a constant temperature in the incubator by means of a petroleum lamp would appear to be almost insurmountable, yet with the form of lamp furnished for this purpose by Lautenschläger, I venture to assert that there was not a variation of three degrees during the whole period of our work. All the apparatus was of the most modern type. Our microscopes were two Zeiss instruments, of the type known as field microscopes, with a case of leather, which could be slung over the shoulder. It is needless to enter into all the details of laboratory supplies; suffice it to say that every need had been most anxiously foreseen and most carefully provided for.

Thus, within a very few days, we were in complete working trim, and in the full blast of our work. The problems and the tasks which confronted us were chiefly of two kinds—epidemiological and bacteriological, and I shall so divide the description of our work. The epidemiological investigation was done by Dr. Kirstein, whereas the greater part of the bacteriological work was done by myself.

In Diemeringen itself, there were, fortunately for us, no cases of typhoid. In at least four of the neighboring villages, however, the disease had broken out, and in Rathsweiler, about three miles away, it had stricken fully ten per cent. of the peasants. The system on which the investigation was organized had been planned in Berlin, and, it is safe to say, was such as could be inaugurated in no other country on earth. Besides ourselves, the machinery which was set in motion in order to render our work as complete as possible, comprise the so-called Bezirksarzt or Kreisarzt, the local physicians, the mayors, and the police. To one who is not acquainted with German conditions, especially such as prevail in the Reichsländer, such as Elsass and Lothringen, a few words of explanation are necessary for an understanding of the powers of these functionaries. The Kreisarzt is a physician appointed and salaried by the State, with functions somewhat similar to those of local boards of health, with the difference that his work is governed and controlled by a central bureau. The physicians stand to their patients in a relation similar to that which maintains elsewhere, but in an altogether different relation to the State. As is the case with so many other professions in Germany—notaries, apothecaries, and others—their number within a given area of territory is limited by statute; this fact tends to insure their practice and prosperity, but renders each physician rather dependent on the good will of the governing power. If he prove in any way disagreeable his position may be rendered very unpleasant, or the number of possible competitors may be increased, to his detriment. Thus the entire local medical profession could be induced to work in harmony with the ends of our investigation. It was enacted that every physician should immediately report every case of typhoid which came under his notice, every suspicious case, which manifested headache, malaise, or diarrhea, to the Kreisarzt of the district. The Kreisarzt was at once to forward his information to the Untersuchungsamt, our laboratory station, and then either he or the station was to take measures leading to the bacteriological identification of the case. In all cases occurring in the villages nearby, we procured the necessary material—feces, blood, and, in cases of pneumotyphus, sputum—in person; if this were inconvenient, the physician was requested to send us samples by the earliest mail, for which purpose specially contrived receptacles were put at his disposal. Of prime importance, of course, is the material for a Widal test, and for this purpose small bottles with rubber stoppers were provided, which could be inclosed in a special form of wooden box, and so safely transmitted through the mail; similar bottles, carefully secured against leakage were provided for feces. The bottles for feces were provided with a cork stopper, into which was fastened a small metal spoon, which reached about half way down to the bottom of the bottle. Bottle and cork were first sterilized. The fecal material was to be packed into the bottle by means of the spoon, and, in the subsequent examination at the laboratory, the contents were removed by a sterilized platinum loop. I mention these details in order to show what consummate care was taken to avoid even such a common accident as the chance contamination of the suspected feces. Physicians were requested to send at least 5 c.c. of blood, inasmuch as it was the rule to control the microscopical by the biological test. All of these regulations made it fairly certain that no case of typhoid could escape detection, and, from an epidemiological standpoint, this was an extremely important consideration. The relation of the mayor and police board to our work consisted chiefly in the enforcement of the necessary general hygienic measures, as will be subsequently detailed.

The first problem, and, it may be said, the chief epidemiological problem which had to be solved, was the question of the origin of the epidemic. I believe it to be not quite generally known in America that the present movement in Germany is based upon a theory which represents a violent break with the typhoid traditions of the past. It has long been, and is, at present, very generally believed that epidemics of typhoid fever are nothing more nor less than water infections. Indeed,

at the recent Städteausstellung in Dresden, in which an entire building was devoted to epidemiology, comparative statistics of previous typhoid epidemics seemed to show that at least 97 per cent. of these could be traced to contamination of the water supply, or of the milk, which amounts practically to the same thing. Nevertheless, an undercurrent of revolt against this theory has never been wanting. It has always been recognized that a certain number of cases get their infections, not from a common water-supply, but from direct contact with other victims of the disease. The most common example of this kind of infection is furnished by the nurses, who in "model" hospitals, such as that in Hamburg, become infected in a ratio of two per cent., while in some hospitals, such as the Prussian military lazarets, the infections may reach 8 or 10 per cent. Moreover, occasional epidemics have arisen, in which it has seemed impossible to lay the blame at the door of the water supply, as in that which occurred in a French garrison, if I remember rightly, in Algeria, in 1901, and which was attributed to the distribution by a wind storm of typhoid germs, which were supposed to have lain dormant in dried-up dung-heaps on a neighboring plain. Fanciful as this individual explanation may seem, the fact remains that the improvement in water supply does not appear to have worked with the same degree of magic as in the case of cholera. There is, for example, no case in typhoid literature which shows the same wonderful coincidence of the area of disease with that of a contaminated water supply, as did the Hamburg-Altona epidemic of cholera. Moreover, improvement of water supply has notoriously not exterminated typhoid. Thus, the city of Paris, which has of late years become a model in this respect, has still presented minor localized epidemics of the disease, a fact which could only be brought into harmony with the dominant theory by advancing the still more questionable hypothesis of contamination by "sources Vanelusiennes," or underground streams coming from a distant surface source, as suggested by Chantemesse. A new character has been given to all these problems by the recent announcement of Koch, that all typhoid epidemics must be considered in the light of an infection from man to man. The theory is, it must be admitted, not original with Koch. Musehold, at present Ober-Stabsarzt in the garrison at Strassburg, was the first, I believe, to assert that a certain garrison-infection could only be explained on this basis, and to combat it along lines logically deducible from this hypothesis. But to Koch, as in so many other things, belongs the credit of having firmly and uncompromisingly indicated the general principle. He maintains that the typhoid bacillus is for all practical purposes to be regarded as an "obligate parasit," that it does not maintain its existence outside of the body for any considerable time, and, consequently, that infections are practically from the excreta of one victim to the mouth of the next.

I am well aware that bacteriologists will have much to urge against the very fundamental premises of this theory of Koch's. One need only consult any complete article on the biology of the typhoid bacillus, such as Neumann's in Kolle and Wasserman's Handbuch, in order to convince himself that it is undoubtedly possible for the germs in question to live for a considerable period outside of the body. This, however, is not the point at issue, which must be decided by practical hygienists and clinicians rather than by the bacteriologists. It is simply the contention of Koch that the vast majority of typhoid infections do, as a fact, occur without the agency of a contaminated water or milk supply. It may very well be that his statement is too sweeping; one can hardly believe that the many epidemics which have, apparently with consummate care, been traced to the water supply, should all have been misinterpreted and misunderstood. Nevertheless, it is well to keep in mind that there are few problems more difficult and delicate than the unraveling of an epidemic, and the determination of such cases as have, presumably, received their infection from the water-supply as opposed to such as have received it by direct infection. The crux of the whole question lies in the fact that a careful investigation generally reveals that either mode of infection might, in almost any set of cases, be held responsible. The current of personal intercourse within a community, with all the possibilities which it furnishes for the direct conveyance and transference of the germs of the disease, is as all-pervading and as far-reaching as is the underground current of water. An honest investigator is, therefore, driven to rely wholly on such circumstantial evidence as the *course* and *progression* of an epidemic, which, as I have said, constitutes essentially a non-bacteriological problem. Certainly it is a very remarkable fact that the greatest clinicians of the "ante-Koch" era of medicine received for the most part an altogether different impression of typhoid epidemics from that which subsequently became established. Thus, the great Trousseau, in his collected clinical lectures, recites the history of a large number of epidemics, which seemed undeniably to have traveled from person to person. Most remarkable in this respect was the epidemic of 1855, in the village of Trombern, in which, says Trousseau, it was "a striking fact that the first case appeared in the first house to the northwest of the village, and that the epidemic then advanced step by step, from house to house, until it finally reached the southwestern extremity of the village. I have, however, wandered very far from my purpose, which was neither to defend nor attack any theory of typhoid, but to recite the facts as I observed them in Diemeringen and its vicinity. Be the theories as they may, I am very sure that the epidemics which we had occasion to observe illustrated the potency of contact infection to an extraordinary degree. Personally, I feel convinced therefrom that there will prove to be a very large element of truth in the statement of Koch, and that, just in such country epidemics as we had to study, contact-infection will prove to be at least a very important factor. I come now to a brief description of the epidemic in Rathsweiler, which will show in how far my assertions are justifiable. We may then best consider what constitutes, and contributes to contact-infection, under what circumstances it is apt to become effective, and how it may best be combated.

(To be Continued.)

SOCIETY PROCEEDINGS.

NEW YORK PATHOLOGICAL SOCIETY.

Regular Meeting, held December 9, 1903.

The President, William H. Park, M.D., in the Chair.

Notes on a Number of Mallein Reactions.—Dr. Letchworth Smith said it was the purpose of these notes to present as briefly as possible some of the results of examinations of a number of horses killed during the summer after having been tested by mallein. A reaction to mallein included three points: (1) General reaction—dejected appearance, staring coat, etc. (2) Local reaction—appearance of tender swelling lasting several days. (3) Rise of temperature. According to the Health Department Circular of Information regarding the use of mallein, this was "from 2.7° to 7.2° F.," while French and German authorities insist it

should be at least 3.6° F. to 2° C. The list of cases given did not include all the horses killed, but those which fulfilled the following conditions: (1) Tested by mallein during the months of March, April, May and June, 1903, and notes of the tests recorded; (2) condemned as result of tests; (3) autopsied and bacteriologically examined by Dr. Schwarz, Dr. Weil or Dr. Smith. The results were interesting on account of the temperatures, the part of the mallein reaction which usually claimed the greater share of attention. The temperature was taken five times in the twenty-four hours preceding injection of mallein and five times following it. The mallein was made by Ravenel's method. In estimating the rise of temperature during these tests, the average taken before the injection was compared with the average taken after it, rather than by comparison of the highest temperatures reached in each case. Of the 43 cases with conditions as above mentioned, 8 had shown a rise of 2° C. or more in temperature. Of these, 3 showed lesions interpreted as glanders, besides yielding the glanders bacillus; 2 showed indications of glanders, but the bacillus could not be isolated. Three seemed normal. In 22 cases of the 43, there was a rise of 1 to 2° C. Six of these were bacteriologically and pathologically proven to be glanders. Seven were pathologically positive. In nine cases there were no indications of glanders. In the 13 remaining cases the temperature rose less than 1° C. Four yielded glanders bacillus, 5 showed suspicious lesions and 4 were negative. Even in the cases in which there was a marked rise of temperature, more than one-third showed very doubtful lesions, or none whatever. As the foreign authorities would lead one to expect, 13 cases with temperature changes less than 2° C. were negative. But in the attempt to "stamp out" glanders, the destruction of normal horses was no more important than the mistake of passing over one having he disease. If the conservative course had been followed—of considering the cases negative if they failed to show a rise of temperature of 2° C.—10 horses from which the bacillus was recovered and 12 others which were very probably cases of glanders, would have remained alive, and been a possible source of infection. The speaker regretted that more reliance could not be placed on the negative reactions. Some cases put down as negative might have proven positive bacteriologically if the destruction of the horses could have been satisfactorily managed. It was impossible to get possession of material as soon as desired.

Dr. Smith spoke of the lack of knowledge of lesions which simulate glanders. The experience of the summer supported the position of those who consider mallein a favorable diagnostic agent in suspected cases of glanders rather than those who condemn it. Whether or not under ordinary circumstances the actual destruction of horses, which showed no symptoms of glanders except a reaction to mallein is justifiable, was still an open question. The later observations of Nocard, Babes and other authorities on the curability of the disease tended toward the more conservative idea of isolation until the appearance of more definite evidences that the animal is useless.

An Unusual Case of Multiple Neuritis.—This case was reported by Dr. Harlow Brooks. The patient was a woman, fifty years of age, born in Russia. Apparently there was no tuberculous, specific or neuritic taint in the family. At an early age she began to drink whisky steadily, but never to the point of intoxication. She also drank a little beer, tea and coffee, but not to excess. She married when twenty years of age, and from this time forward had various symptoms which reappeared from time to time. Her ankles became painful and swollen after exertion, pain disappearing after rest. She had attacks of diarrhea following periods of constipation, the latter lasting six or seven days. At forty years of age she was frightened and after this had headache, which lasted for a year and a half, but was relieved by domestic remedies. At the age of forty-one her ankles became so swollen and painful that walking was impossible, and she remained in bed for a time, after which she was able to walk about again. Because of painful callosities on the sole of her feet, she walked on the heels, which gave her a peculiar gait, which still persists at the age of fifty years. Two and a half years ago she noticed some anesthesia of the soles of the feet. This was not permanent, but remained for a week or two, and then disappeared only to return again. Two years before her admission she had lumbago, with severe and persistent pains in the wrist. She lost control of the bladder for nine months, when she recovered completely. During her last illness of nine months' duration, she suffered from pain in the larger joints of the body, was very weak, could do no housework, and remained in bed much of the time. She had no control over urination and defecation. Pains in the back were very severe, also pains in feet, arms and shoulders, when she could not raise either her hands or feet. After six months in bed with intervals of improvemnt, she was able to sit up without help. When examined at the hospital the muscular dexterity was impaired, myotactic irritability was wavelike, there was no perceptible enlargement of the superficial lymph-nodes. She showed no mental weakness, was good natured, and complained very little of the pain from which she apparently suffered. The muscles were flabby and normal in volume, except for a slight wasting of the small muscles of the right thumb. Sensibility as to pain, touch and temperature normal. When two fingers were placed upon the arm, she recognized four, usually increasing rather than decreasing the number of points. Reflexes were exaggerated, motor power diminished. Slight foot drop was noticed when the patient was in bed. The patient developed a bed sore, grew rapidly worse and died. Postmortem showed the lesions of a long-standing case of alcoholism of the chronic type. The brain was abnormally firm. The spinal cord was firm in spots in other places it was soft. No apparent changes in the retina. Anatomical diagnosis was peripheral neuritis probably of alcoholic origin. There was interstitial hyperplasia in all the organs. In the brain, spinal cord and nerve roots, it was found that the cortical fibers coming from the large pyramidal cells of the frontal and parietal regions of the cortex were extensively degenerated. The fibers were also degenerated in the internal capsule, the medulla and the spinal cord showed a marked descending degeneration most marked in the crossed pyramidal tracts. As she expected, degeneration of the posterior tracts was found, but it was more extensive than anticipated. There were, however, no distinct areas of sclerosis. The posterior root ganglia showed cytoclastic changes and both posterior and anterior nerve roots were extensively degenerated. In the peripheral nerves there were interstitial and parenchymatous degenerations more prominent in the smaller trunks, less so in the larger. Presence of the descending degenerations was most interesting. These degenerations were present without marked mental change as though the motor fibers were particularly affected, and yet in the so-called psychic areas sections showed some degenerated fibers. The speaker thought it rare in cases of alcoholism producing degeneration in the brain, cord and peripheral nerves, to find the descending degeneration fully as marked as the ascending changes.

He thought the lack of knowledge of these brain changes was due to the fact that observers had been satisfied on finding the changes in the peripheral nerves and did not search further for alterations in the brain.

Dr. M. G. Schlapp, in the discussion, said that two years ago he had shown a case of so-called alcoholic neuritis in combination with mental symptoms (Korsakow's syndrome) to the Pathological Society, in which there had been marked changes in the spinal cord and medulla. The brain of this case had not been examined up to the time of the presentation, but later he examined and found changes throughout the cortex. This case differed from the one of Dr. Brooks, in that the mental symptoms were very marked. The point brought out by Dr. Brooks that these changes had not been observed in similar cases of alcoholic poisoning before, is very likely due to the fact that in examining these cases former observers did not use a method whereby acute degenerative changes, such as are found in alcoholic poisoning, are made visible. These changes are demonstrated by the Marchi method. The lesion as a rule is the result of an acute or subacute condition. It does not involve whole tracts, but only groups of fibers in certain tracts, particularly the fibers in the posterior root zones of the spinal cord, and the intramedullary fibers of the sensory cranial nerves. The speaker agreed with Dr. Brooks, and wishes to lay special stress upon the statement, that it is very likely that in all those cases of so-called alcoholic neuritis, the lesion is not confined to the peripheral nerves, but is also found in the central nervous system; in fact, in all the cases examined by the speaker, five cases of alcoholic neuritis with mental symptoms (Korsakow's syndrome) the lesion was more marked in the cord or brain than in the peripheral nerves.

A Patent Foramen Ovale and a Case of Multiple Serositis.—These cases were demonstrated by Dr. J. E. Welch. In the first case the patient was an Italian boy of sixteen years, who could not give an account of himself in English. He had dyspnea and edema of the legs, which gradually spread over the body and became general. The principal symptom was great pain over the precardial region; so great that he requested another Italian in the ward to give him some instrument with which he might commit suicide. Autopsy showed heart greatly enlarged on the right side, hypertrophied and dilated. Deposit of recent fibrin over right auricle and ventricle and about apex. All valves were thickened, tricuspid and mitral to a much greater extent than the others. The patent foramen ovale was of enormous size—1½ inches in diameter; just beneath it was another and smaller opening.

In regard to the second case: In 1846 Van Deen reported a case with the following findings: Obliterating pericarditis, pleurisy with adhesions obliterating both pleural cavities. Inflammation of the peritoneal cavity causing general thickening of the peritoneum, with marked thickening over liver, spleen and the intestines. This case had constant ascites with edema of the legs subsequent to the ascites. Van Deen's theory was that the obliterating pericarditis was the primary lesion and that the inflammation spread to the pleural surface, thence to the abdominal cavity. Since then many cases have been reported. Dr. Wood, of Philadelphia, in the *American Journal of the Medical Sciences*, January, 1903, showed that a constant feature was an ascites, the serous membranes throughout thickened with obliterating pericarditis. The principal point is the fact that ascites appears before the edema in the legs in a great majority of cases. There is no change in the liver, except in a few cases that would account for the ascites. In the case Dr Welch reported, the patient was a stableman aged thirty-five years; was alcoholic; took five or six glasses of whisky a day, one or two before breakfast, and enormous quantities of beer. Had had gonorrhea several times. Twelve years ago had chancroids, followed by suppurating inguinal adenitis. Was never ill before. November 1, 1902, cramplike pains all over the body which soon localized in the upper part of the abdomen which became swollen and tender. Physical examination showed that he had ascites with swelling of the legs, the heart had a rapid, feeble action. There was some increase of tension in the arteries, which were small in volume. Somewhat cyanosed; no jaundice. Directly after admission to the hospital a general syphilitic rash broke out. He then admitted having had a hard chancre, which had healed five weeks previously. He was dismissed from the hospital December 12, 1902, feeling much improved, and was treated in the Dispensary until the first of March, 1903, when he began to have swelling of the abdomen, with pain; about two weeks later had dyspnea and edema of the legs. He entered Bellevue again on March 15, two or three weeks after his trouble began. A short time afterward he was tapped, and a large quantity of fluid was drawn, which was of the nature of a transudate. He was tapped at intervals until just before his death, which was in the early part of August, 1903. Autopsy showed (membranes of brain not examined, as permission to do so could not be obtained), obliterating pericarditis. The right pleural cavity contained firm, old adhesions, about the base of 300 c.c. of serum, the left contained firm adhesions to the posterior border of the lung, and about the base, three litres of serum. Had perihepatitis (sugar-coated liver), perisplenitis (sugar-coated spleen), and general diffuse thickening of the peritoneum. There were a few slender, firm, cordlike adhesions between diaphragm and upper surface of liver, both lobes; also between the stomach and transverse colon, tubercles in the lungs and in the bronchial lymph glands; few in the spleen, none in peritoneum or liver. Liver cirrhosed, inter and intralobular connective tissue. There were 4,000 c.c. of turbid serum in the peritoneal cavity. There was complete obliteration of the great omentum and gastrocolic omentum, and free communication between the greater and lesser peritoneal cavities. Cause of condition, probably alcoholism, syphilis and tuberculosis; tuberculosis in the peritoneum not included in this case. That is also given as a cause by some writers on the subject.

Dr. E. Libman, in the discussion, asked Dr. Welch if there had been any positive venous pulsation; the combination of a mitral insufficiency with an open foramen ovale usually produced it. He said he had looked up the records of the hospital; in the last hundred autopsies there had been thirteen cases in which the foramen ovale had been more or less open. They had occurred at all ages from three months to forty-four years, and had not shown any clinical symptoms that could be referred to the foramen ovale. Ordinarily this condition did not seem to produce clinical symptoms, unless combined with other congenital or acquired lesions, or particularly in infants with diseases of the lung causing interference with the circulation. In the case reported by Dr. Welch the opening was very much larger than he had ever seen.

Dr. Welch replied that there was a venous pulsation in the vessels of the neck and there was also a very distinctly pulsating liver.

Dr. Brooks said the case had been very carefully examined in the ward, and the lesion had not been classed as of the foramen ovale. The man arrived from the steamboat and diagnosis could not be made out. The trouble was thought to be a double mitral lesion and

possibly tricuspid. There were so many murmurs they could not be localized as coming from any one place.

Paratyphoid Infection.—Dr. George A. Tuttle reported a group of seven cases of paratyphoid infection, four of whom, a mother and three children, entered the Presbyterian Hospital. They were all taken ill about the same time with symptoms suggesting typhoid fever. Three of the cases recovered. The mother died. In no case was an agglutination reaction obtained with the typhoid bacillus. From the tissues of the patient who died, pure cultures were obtained of bacilli, which formed typical colonies when grown in the Hiss medium. They did not coagulate in milk nor produce indol. No gas was formed in lactose bouillon. They fermented glucose with the production of gas. They were motile and resembled morphologically typhoid bacilli, but there was no reaction to strongly agglutinating typhoid serum. The blood of this patient and that of the other three cases clumped four out of six specimens of paratyphoid organisms obtained from the Laboratory of the Board of Health from different sources. Examination in the fatal case showed that the lungs, heart and liver were normal. The gall-bladder contained a number of fairly large calculi, one of them forming a sort of ball valve in the cystic duct. The gall-bladder was filled with a viscid, light colored fluid. The wall was thickened and had evidently been the site of an old cholecystitis. The spleen was soft, pulpy, and weighed 6¾ ounces. The kidneys weighed 6¼ ounces each, with nothing to indicate any chronic disease. The cortex was pale and there was considerable congestion. The intestines showed Peyer's patches normal, except in the lower two inches just above the ileocecal valve. Here there were four or five small ulcers, the largest one, one-half inch in diameter. They were punched out and were rather deep, some reaching the peritoneal layer. The lower part of the small intestine and the entire large intestine were filled with blood. Living on the same floor with this family was another family of four persons. At least three of these people were taken ill in the same manner at about the same time. These two families lived on the top floor of a tenement house, and obtained water from a tank on the roof into which the water was pumped from the cellar. They obtained milk from different sources and it seemed probable that the water was at fault. However, it had been examined and nothing found. The blood from one of the cases in this second family was obtained through Dr. Park, and it gave a prompt agglutination reaction, with the paratyphoid bacilli isolated from the fatal case in a dilution of 1 to 60, but did not agglutinate with typhoid serum. This group of seven cases is considered as paratyphoid.

Dr. C. W. Field said he wished to say a word about the tank on the roof mentioned in Dr. Tuttle's report. It was built last year, and was made extra large, the owner thinking he might make a deal with the owner ot the next house, and have the four top floor tenants supplied with water from the same tank. This could not be done, and this large tank was pumped full, the water allowed to remain without freshening until all used. In this way when water was low, it became offensive, nearly black, filthy and dirty, as both families assert. The husband in the other family refused to drink it; he drank beer instead, and remained well. In this family there were five members, of whom three became ill. A man caller came frequently during the month of August and drank considerable water during evening. On October 7 he developed a disease which was diagnosed as typhoid in Yonkers. He recovered. He had temperature when taken ill of 104½° F. All symptoms corresponded closely with the group reported, and without doubt he had been infected from the same source as the others. All recovered within about four weeks from the beginning of the attack.

Dr. Park said the only people attacked were those who used the tank water. Out of a possible thirteen, eight became infected. There were seven or eight other families in the house, with no cases of the disease whatever.

Dr. Libman wanted to know what sort of serum was used which refused to agglutinate the bacilli from these cases, but did agglutinate typhoid? He wanted to know also what the reaction of the bacilli was in glucose media.

Dr. Tuttle replied that when it was found that the bacilli did not produce Widal with the ordinary typhoid, they were tested with the glucose medium. In twenty-four hours there was a very faint bubble of gas. In forty-eight hours there was abundant production of gas; no gas in lactose.

Dr. Brooks asked if the ulcers looked like typhoid, and what was the condition of the peritoneal lymph-nodes.

Dr. Tuttle replied that they looked like some typhoid ulcers, and that no observations had been made of the peritoneal lymph-nodes. In his experience Peyer's patches had been irregularly distributed in this neighborhood. There were punched out ulcers in the mucous membrane, with no evidence of Peyer's patch around them. If the patch had been there it was all gone. The ulcers were in just about the area where one would expect to find the patches—within two inches of the ileocecal valve. He also said in regard to the microscopic appearance of the bacteria in the hanging drop they did not look like typhoid bacilli, and did not act like them. They appeared to be shorter, often double and frequently were in long strings, almost like streptococci. After staining they looked like typhoid, but were markedly different in the hanging drop.

Dr. Park said the cases were interesting, as the woman who had died had been engaged in cleaning up a great many typhoid cultures at the Research Laboratory, and it had been suspected that she had become infected in the laboratory. If the disease had not been proven to be tank infection and paratyphoid it would have been hard to make it clear that she had not been careless in working at the Department of Health. This showed how misleading apparent evidence might be in many cases.

Precipitins.—Mr. J. P. Atkinson read a preliminary note on precipitins formed by injecting animals with globulin derived from normal horse serum and from horse serum containing diphtheria antitoxin. The experiments were devised to see whether in animals injected with the globulin of normal horse serum and with the globulin of diphtheric antitoxic horse serum were developed anti bodies which would act as a specific precipitin for normal horse serum globulin, and for the antitoxic horse serum globulin, respectively, thus affording a method for separating the active substance in diphtheria antitoxic serum from the inactive substance. Globulin solutions were prepared from normal and diphtheria antitoxic sera by precipitation with magnesium sulphate and were purified by solution and reprecipitation until free from serum albumin and finally were freed from magnesium sulphate by dialysis. Chloroform was used to prevent putrefaction. Two rabbits were selected for immunization, one being injected with the solution of normal globulin, the other with the solution of antitoxic globulin. After a number of injections had been given each rabbit they were bled and the sera from the clots were tested against

diphtheria antitoxic serum with the following interesting results:

Two samples of diphtheria antitoxin which had just recently come into the laboratory to be tested were diluted so that 1 c.cm. of the dilution contained one-tenth unit of anitoxin. Two portions of 5 c.cm. each were taken from each dilution and to them was added serum from each rabbit, so that the globulin in each antitoxic horse serum was acted on by what we may call an antinormal globulin serum and an antitoxin antiserum, which should react for both normal and antitoxic globulin. After precipitation had taken place the precipitates were filtered off. An amount corresponding to 1 c.cm. of the original serum dilution from each filtrate was mixed with ten fatal doses of diphtheria toxin and injected subcutaneously into guinea pigs. All the guinea-pigs died within forty-eight hours after inoculation.

The antitoxin dilutions were tested against diphtheria toxin, to make sure that without the presence of the rabbit sera these antitoxins would protect against ten fatal doses of diphtheria toxin. The toxin was also tested and found to be of the estimated strength. The action of both rabbit sera was again tested. In this experiment twice as much antitoxin as was necessary to protect against ten fatal doses of toxin was used, instead of the exact neutralization dilution. The result was the same. Both guinea-pigs injected died within forty-eight hours. It will be seen by these tests that a specific antibody differentiating between normal globulin and antitoxic globulin was not found, for the rabbit injected with normal globulin solution produced precipitating substances for the antitoxic globulin.

One would infer from the results of these tests that normal globulin and diphtheria antitoxic antiglobulin are affected by a common precipitin, while differing in the molecular arrangement through which neutralization of diphtheria toxin occurs. It also adds to the belief that diphtheria antitoxin is of a proteid nature. Experiments were made to determine whether he globulin precipiating serum would throw down the antioxin from the toxine antitoxin and leave the toxin free. It did not do this and thus showed that a strong combination existed between the toxin and the anitoxin. Whether the toxine antitoxin combination, as well as the free antitoxin was precipitated or whether it was left in solution is being now determined.

Dr. F. C. Wood said that he did not think it was justifiable in our present state of knowledge concerning the precipitins to expect that the reaction would be in any way sharply limited to the antitoxin. From his own experiments and those of others it had been shown that the blood of an animal immunized with a pure proteid, for instance, a serum albumin from human chest serum, would give a serum which precipitated not only human serum albumin, but globulin and even hemoglobin.

It was still doubtful whether the hemoglobin, for example, was actually precipitated by the antibody, or whether it was carried down mechanically with the precipitum from other proteids present. It seemed to him also that the assumption from precipitin tests alone that diphtheria antitoxin was of proteid nature lacked foundation, especially after the results obtained by Jacoby in isolating the toxic group from ricin. Apparently the toxin in this case, though it could be precipitated by means of neutral salts, yet was not of proteid nature, but only attached to the proteid molecule. The contradictory results obtained by Obermayer, Pick and Michaelis showed that there was much to be learned about the exact chemical nature of the precipitated substance.

THE NEW YORK ACADEMY OF MEDICINE.

Section on Diseases of Children.

Regular Monthly Meeting, held December 10, 1903.

The President, Henry Heiman, M.D., in the Chair.

Hypertrophic Cirrhosis in a Child.—Dr. Samuel Evans presented a child about six years of age suffering apparently from hypertrophic cirrhosis of the liver. The family history is good and the personal history has the single significant element that the child was given a little beer when it was about two years old with its meals but never any other alcoholic liquor. The family are accustomed to take beer and wine freely at their meals. The first sign of illness was an enlarged abdomen with a wasting of the rest of the body. When the little patient came under treatment, though it looked pale, there was no anemia, that is, no deficiency of hemoglobin, or of number of red blood corpuscles. There has never been any jaundice present and there are no venous stigmata anywhere in the body. Urine is of high specific gravity and contains a little albumin. The stools have been regular with slight amounts of mucus occasionally. There has been no hemorrhage from the bowels. On percussion the liver is found to extend from the fifth interspace of the axillary line to three inches below the border of the ribs. The spleen is not palpable and has never been palpable even with the child in the knee-chest position. While the case contains some elements pointing to hypertrophic cirrhosis, there is an absence of the ordinary causes. Two cases have been reported in which patients though not taking alcohol drank coffee to excess. If, as has been recently thought, it is the gastro-intestinal disturbance produced by the alcohol, rather than the alcohol itself, which brings on the cirrhotic condition, it is possible that coffee producing similar disturbing symptoms, might have a like effect. In the present case coffee has been used very freely and there has been more than a suspicion that that was the causative agent. In answer to a question by Dr. James J. Walsh as to the employment of specific treatment in the case, Dr. Evans said that mercury had been used and improvement seemed to follow its use. The gastro-intestinal condition was better than before, there seemed to be less ascites and the child's limbs seemed to be gaining in flesh. The treatment consisted in small amounts of calomel given every day and the coffee has been given up completely.

Purpura Hemorrhagica.—Dr. Stowell described two cases of this disease recently under observation. The purple disease of the skin or the viscera is due to small hemorrhages in these organs and when the hemorrhages occur in the joints then it is spoken of as rheumatic purpura or Schönlein's disease. When there is blood in the stools it is spoken of as Henoch's disease. In Dr. Stowell's first case there was blood and mucus in the stools and some bloody vomit. There was considerable fetor of the breath, hemorrhagic spots occurred over the entire body. Medication seemed to have very little effect, though tannin, bismuth and the various astringents, as well as antiseptics were employed—all failed. In the second case the patient had green watery stools later streaked with blood. The temperature rose to 101.5° F., the pulse to 132 and the respirations to sixty. Pneumonia was suspected, but the fever fell to 97° F., after which the bloody stools stopped, but the purpura continued and death ensued. At the autopsy no dysenteric bacilli were found and there were no agglutinating properties demonstrable in the blood. The lungs were normal. Ecchymoses were found on the pericardium, in the mucous membrane of the cecum and intestines as well as in the liver.

Etiology of Henoch's Purpura.—A number of similar cases have been described by authors in Europe and America, but there is a great variety of opinion as to the cause of the disease. Some have attributed it to a lack of potassium salts in the blood; others to a lack of blood plaques. Henoch considered it a vasomotor disease. In recent times many have attributed it to a bacillary cause. At least one supposedly specific bacillary cause has been found in the blood. The blood usually shows the appearance of secondary anemia, but is often absolutely normal. This was the case in both of Dr. Stowell's patients. In a group of cases, a pig suffered from the disease and the owner, the swineherd, and a girl who took care of the animal, all contracted it. The disease is common in swine. The petechia in Dr. Stowell's cases were quite different from those hemorrhagic patches which occur in wasted children, especially when the skin is loose. Dr. Stowell has seen one of these cases not very long since where the baby was suffering from marasmus, although entirely breast-fed.

Dr. Henry Heiman, in discussing these cases, said that the blood is usually found normal in these cases. Hence the disease is probably due to a microbe, or even more likely to a deficient intima of the blood vessels.

Bronchopneumonia.—Dr. Bovaird said that at the Foundling 40 per cent. of the deaths are due to this, only two per cent. to lobar pneumonia. This does not give the absolute proportion, but it suggests the relative frequency. Children never die in the primary stage of simple congestion, but always in that of red or gray hepatization. At times a lobe is found only partly consolidated, a true lobular pneumonia. Often there is a heavy deposit on the pleura, sometimes greenish in color, plastered over the lung. At times small abscesses may be found. In bronchopneumonia, the lung shows a red, shiny section, not granular, as in lobar pneumonia. The bronchi project above the surface and pus may be pressed out of them. The appearance is often mottled or dappled dark gray with cellate trefoil or clover-leaf figures Empyema is more frequent than is thought. The bacteriology of lobar pneumonia is well established. In 95 per cent. of the cases it is due to the pneumococcus. It is now known that the pneumococcus of pneumonia is also in the circulation. The Klemperer's, twenty years ago, could not find the bacilli in the blood. Later Aufrecht found it in 20 per cent. of the cases. Now bacteriologists find them in practically all the cases. Hence the disease is a general infection with a localized lesion. Bronchopneumonia is due to a mixed infection, the commonest causes being the streptococcus or the bacillus of Friedlander.

Diagnosis of Pneumonia.—Dr. William P. Northrup said that the most important element in the diagnosis of pneumonia is its early recognition. What then are the signs by which an experienced matron in a children's hospital suspects the beginning of pneumonia? Not infrequently, at the Foundling Asylum, the matron will go up to a nodding child and put it to bed saying that it probably has pneumonia, when the ordinary physical examination will show as yet no signs in the lungs. As a rule the child with developing pneumonia first refuses breakfast. Sometimes it vomits then it ceases to play and at times becomes bluish. The onset is rather abrupt and there is a dopy, chilly, shivery appearance about the child. When examined it proves to be hyperesthetic and shrinks from the stethoscope. The fever in these cases will sometimes be found as high as 104° F. at the very beginning. The ordinary pulse respiration ratio is 1 to 4. When this is disturbed the physician should always look for an affection of the lungs. An increase of respirations to 40 with a pulse of 140 nearly always means pneumonia. The first physical sign that is noted is a shower of râles. Then there is diminished respiration and diminution of the bronchial sounds, both voice and breathing. Cough is inconstant and is of little value, bing dependent on the catarrhal condition of the upper air passages. Dulness is the last sign that occurs. The child is usually lethargic and somnolent owing to the toxemia. Not infrequently there is a little stiffness of the neck and arms in children suffering from pneumonia, owing to the fact that the muscles surrounding the thorax are put at rest by nature. This may make it a little difficult to differentiate from tuberculous meningitis, but the facial expression is very different in the two diseases. Tuberculous meningitis has an expressionless mask, pneumonia gives a drawn face. The important differential sign, however, is the disturbance of the pulse, respiration ratio. As a rule, nurses do not take the respirations of the patients under two years of age. This is important, however, and they should be instructed to do so. At times a central pneumonia may give no physical signs, and the only method of making the diagnosis will be from the appearance of the patient and the disturbance of the pulse respiration ratio. Not infrequently diagnoses made from this symptom alone are confirmed by a frank crisis followed by satisfactory convalescence.

Treatment of Pneumonia.—Dr. J. W. Winters said that lobar pneumonia is practically never fatal in children and that the main element of any treatment must be surely to do no injury, or to disturb the patient. Whatever treatment is instituted must have due regard to the individual peculiarities of the patient. It is important that children suffering from pneumonia should be kept in a comfortable warm room, at a temperature of about 72° F. At the society for the Prevention of Cruelty to Children, where many cases have been under treatment, no deaths have occurred, but the question of an equable temperature is considered so important that a special night engineer is employed so that the temperature of the room shall not sink during the night. A cold skin leads to contraction of the cutaneous vessels, throws more work upon the heart, causes a congestion of the vesceral vessels and especially of the weakened vascular system of the diseased lung. It must not be forgotten that nearly 80 per cent. of the heat radiated from the human body passes directly from the sin. Ten per cent. more goes through this same tissue by evaporation. The control of the cutaneous vessels is extremely important, whenever there is any disturbance of temperature.

Contraction of Cutaneous Vessels.—Any contraction of the cutaneous vessels causes the internal temperature to rise. Exposure to cold or douching with cold water, far from bringing down the temperature, tends to increase it. There are many physicians, however, who seem to harbor the idea that temperature can be directly controlled by exposing a sick baby to cold. One night last winter, Dr. Winters was asked to see, in consultation, a child suffering from pneumonia and found the baby absolutely naked in a cold room, with the window open. The physician said that he had been absolutely unable to reduce the temperature which was about 106° F. Dr. Winters suggested wrapping it in flannel from head to foot, prescribed large doses of niter and a small dose of Dover's powder. The physician was to remain with the child during the night and improvement began at once, as soon as the condition of the skin allowed the patient to give off heat rather than accumulate it. Exposure, whether to cold air or to cold water, causes an intense disturbance of the nervous system. Whenever there is fever, nervous phenomena are likely to be marked in children, hence the

muscular agitation often seen in febrile conditions. The nervous reflex from a cold skin causes violent inspiration, bringing the accessory muscles of respiration into play and seriously disturbing the child. Usually the child respires by means of its abdominal muscles and there is no disturbing expansion of the thorax. In pneumonic conditions this natural condition should be encouraged, but cold applications have a directly opposite effect. Ice is used in the treatment of pneumonia in certain institutions for children, but this remedy certainly could not be employed in private practice among intelligent people and, as a matter of fact, it is unwarranted, since there is no good reason for it. Without any use of cold or cold applications the pneumonias at the rooms of the Society for the Prevention of Cruelty to Children constantly improve and the mortality is nil. Dr. Winters considers that Dover's powder is an important remedy in the treatment of pneumonia, especially at the beginning, when there are irritability and unrest. The true Dover's powder, however, should be employed and not that made according to the modern formula, which druggists usually supply. As Dr. Dover originally wrote the prescription it should contain opium, ipecac and sulphate of potash. For the sulphate of potash sugar of milk has been substituted in recent years, to the great detriment of the effectiveness of the remedy. Sulphate of potash is diaphoretic. The new form of Dover's powder induces constipation and brings on nausea. As is well known, any disturbance of the gastro-intestinal tract in children suffering from pneumonia, may easily prove serious since abdominal conditions so readily interfere with respiration. Modern Dover's powder does harm rather than good. Dr. Winters does not think that any of the coal-tar products should be used. When an antipyretic is needed, aconite to its physiological effect is the best drug and has no bad after-effects and produces no complications because of special idiosyncrasies. It should be given as the conditions indicate. During the fever of pneumonia, children are often very thirsty. In order to quench their thirst, they will take milk even though they may have no craving for food at all. If more milk is given than can be readily digested it produces abdominal distress and gives rise to gastro-intestinal fermentation and consequently interferes with respiration. This is the most serious thing that could possibly happen in a pneumonia case, since it is well known that any meteorism soon interferes with regular respiration and makes the outlook serious. The child should always be given all the water that it can drink, but should not be tempted much with milk until sure that the thirst has been relieved. The tongue is the most important factor in estimating the condition of the patient. A good clear tongue means easy descent of the diaphragm.

Alcohol and Other Drugs.—Alcohol is almost never needed in lobar pneumonia. In feeble children with irregular pulse, especially about the time of the crisis it may be of assistance. It must not be forgotten that pneumonia does not end by crisis near so frequently in children as it does in adults. When alcohol is employed it should be given by the rectum, sufficiently diluted with hot water as not to produce any irritation When given by the mouth it often induces vomiting and is a frequent source of gastro-intestinal irritation. Strychnine should not be employed on general principles, but should be given for special indications about the time of the crisis. It should be given nearly always hypodermically. As a rule, no drugs should be given by the mouth. In septic conditions oxygen should be employed freely and the little patient's condition should not be allowed to sink too low before it is used. Properly employed, it is equal in value to whisky and strychnine.

Insidiousness of Pneumonia.—Dr. Rowland G. Freeman said that the diminution of the respiratory murmur is a valuable early sign of pneumonia and changes in this during the course of the disease show the development of pleural exudate or beginning empyema. Often there are no definite physical signs of a pneumonia and throughout the course of the disease there is apparently only a bronchitis. Sometimes the existence of a respiratory grunt is the only thing beyond the symptoms of bronchitis. It is only as the temperature comes down that the pneumonia consolidation makes its appearance at the surface of the lung and gives physical signs. It is probable that many cases of pneumonia are missed. Strychnine is well borne by children as a rule and should be employed in considerable doses. The use of alcohol would better be put off until near the crisis.

Nitroglycerin and Digitalis.—For cold extremities there is no better remedy than nitroglycerin. Digitalis is very valuable in conditions of heart disturbance but it produces so much irritation of the stomach, that it is often of doubtful service.

Dr. Charles G. Kerley said that the most important element in the treatment of children suffering from pneumonia is rest. Mother and nurse are directed that the child must be left in its crib, not taken in the arms, or held on the lap. The room must be kept at a temperature of 70° F., and once a day, usually about four in the afternoon, the child must be transferred to another room and the ordinary sick-room kept open for an hour in order to be well aired. Needless to say, the child must not be brought back to a cold room. The temperature must have reached 70° F. again before the child is returned. The air is important, so that a window must always be kept open, though the current of air must be so guarded as not to chill the room. The child must be warmly dressed, but protective dressing on the heart, such as oiled silk, only makes the child uncomfortable and irritable and hampers thoracic movement and consequently respiration.

Hygienic Measures.—The food must be reduced and, while the child is given plenty to drink, it must not be tempted to eat. A standing order is given that the child shall have an enema every twenty-four hours if there is no stool. The feet must be kept good and warm to make the circulation easier. No special drug is of any benefit and unnecessary drugging may easily do harm. Drugs must be given only when indicated. This holds good for strophanthus and strychnine and other stimulants as well as for less defensible remedies, for they must not be given on general principles. Digitalis is all right in theory, but it always disturbs the stomach. The gastro-intestinal tract must be kept in good condition at all hazards, for any irritation here causes interference with the action of the diaphragm and disturbs respiration. When the child's temperature runs high and the little patient becomes very restless, then a cold pack is the best possibly remedy. The arms and legs should be left free, but the child's thorax, should be wrapped in a large bath towel. In this Dr. Kerley takes direct issue with Dr. Winters, though he does not consider that the child should be shocked, or that it should be wrapped entirely in cold cloths. To cover the child entirely with a cold water bandage is surely to do harm. The pack may be put on at 90° F. and gradually the temperature of the water which is poured on the towel, may be reduced. As soon as the temperature reaches 101° F. the pack must be removed and then reapplied if necessary. There is no

special temperature for all patients. In some 90 degrees is suitable in others 50. In bronchopneumonia the same indications hold, though in this affection it is important to watch the gastro-intestinal tract, as the child may be ill for weeks at a time.

Bronchopneumonia.—In slow running bronchopneumonia counter-irritation is often of very great service. A poultice consisting of mustard one part and flour two parts, may be applied and kept on for from ten to fifteen minutes, or until the skin is reddened. Individual patients differ in their susceptibility to the influence of mustard, so no hard and fast rule can be given. This may be reapplied in from four to six hours, if necessary. There is an easiness of breathing and a softness of the cough that follows this treatment. Steam inhalations are also of value and if a little creosote is added to the steam it has an excellent effect. Twenty drops of creosote should be dropped in a quart of water and the child placed in a tent, allowed to breathe this for half an hour at a time, or, in severe cases, even an hour or an hour and a half. Oxygen is of great service when dyspnea is marked but the inhalation of the gas should not be continuous, as its intermittent inhalations for two or three minutes with two or three minutes of rest seem to do much more good.

Individuality of Treatment.—Pneumonia is a self-limited general infection, the complications of which cannot be prevented, nor the course shortened. The indication then is for supporting treatment. There is no per se treatment of pneumonia, but each little patient must be carefully studied. Cold is undoubtedly detrimental. The rules for the treatment of fever in adults do not hold in children. Some children stand the temperature of 104° F. very well. The physician's mainstay in the treatment of fever must by hydrotherapy. The coaltar products should be tabooed. Quinine is at times of excellent service, quiets the patients and gives sleep. Water must not be used cold in the treatment of children, for they do not react well and are disquieted thereby. Patients should be rubbed with lukewarm water, first gradually reduced in temperature, followed by a certain amount of alcohol. The idea is not to reduce the temperature, but to stimulate the heart and kidneys and the internal circulation and to soothe the nervous system. The temperature must not be knocked out or the patient will also be knocked out. As a rule, very few drugs are needed in lobar pneumonia and the fewer that are used the better. Inhalations, in Dr. Koplik's experience, have never done good, since they exclude fresh air and seem to cause cough. Moisture seems to have a like effect. Poultices should not be used as they weigh down the chest. In cases of accumulation of pleuritic fluid, puncture to remove it is inadvisable, unless absolutely necessary. The struggle and excitement incident to even such a slight operative procedure always do more harm than good.

Dr. Stowell said that steam inhalations in his practice have always seemed beneficial. In the three classes of patients that have come under his care, children in hospitals, in the tenements and in the homes of the well-to-do, though treatment has been very differently applied, in its faithfulness the results have been nearly the same. In the hospital the doctor's directions are absolutely followed, in the tenements they do what they can, in the homes of the wealthy they do what they please. The mortality in all cases is about the same. This is evidently an argument in favor of simplicity of treatment.

Absence of Cough.—Dr. Walter Lester Carr said that cough is usually wanting in children suffering from pneumonia. Though there is often an expiratory effort which the nurse may call a tickling. In most cases of pneumonia among the children the complication that occurs is gastro-intestinal more than cerebral and the possibility of mistake in diagnosis on this account must be remembered. Cold is badly borne by children and there must of course be no question of the plunge bath, no matter how high the temperature. Lobar pneumonia causes very little necessity for drugs, but bronchopneumonia requires the greatest of care to meet the indications of the individual case.

Steam Inhalations at the Babies' Hospital.—Dr. Kerley said that in the new Babies' Hospital a special room for steam inhalations, the steam being supplied from the heating apparatus, has been constructed. It is considered of the greatest possible service, indeed almost indispensable in the treatment of bronchopneumonia and bronchitis.

Dr. Dessault said that as pneumonia is a self-limited disease, the mortality is very low and the prognosis of cases can often be judged from the occurrence of albumin in the urine. The outlook is always unfavorable when albuminuria is present. Dr. Fenwick, of London, has applied this same idea to adults and finds it of very great value. The presence of even traces of albumin in the urine should put the attending physician on his guard and keep him from making any promise as to results.

At the annual election of officers, held at the close of the meeting, Dr. David Bovaird, Jr., was chosen as chairman and Dr. Matthias Nicoll, Jr., secretary of the Section for the ensuing year.

THE WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Thirteenth Annual Meeting, held at Denver, Colo., December 28 and 29, 1903

The President, Alexander Hugh Ferguson, M.D., in the Chair.

Carcinoma of the Lung.—Dr. W. W. Grant, of Denver, Colo., read a paper on this subject in which he reported two cases, one of which recurred after an unusually long interval, and having at one time coincident tubercle bacilli, and occurring several years ago. The other was recent and seemingly primary.

Pancreatic Cyst.—Dr. Grant gave the clinical history of a case of pancreatic cyst. He spoke of the causes of pancreatic cyst, reviewed the literature of reported cases, which showed convincingly that the disease was essentially surgical, and that delay in operating was as dangerous and fatal as in appendicitis. The gengrenous cases could only be saved by promptly opening the abdomen and draining. Formerly and recently reported cases in the *Annals of Surgery*, by Woolsey, which seemed unfavorable for operation, amply attested this. The suggestion in the treatment of the sac was to dissect it out if small, but in the case of a large sac this attempt was manifestly unsafe and dangerous. The extensive adhesions made it exceedingly difficult, and extravasation of pancreatic juice or septic material would probably destroy the patient. Patients had died from this treatment; while to attach the sac to the abdominal peritoneum, if not already adherent, and drain, was safe, and undoubtedly the best treatment of a large cyst. Pancreatic disease often simulated intestinal obstruction, and the statement might be safely accepted that if the surgeon opened the abdomen and did not find obstruction or perforation of the stomach, but observed fat necrosis, the pancreas was, in all probability, the source of the trouble.

Dr. Grant said several writers had considered the differential diagnostic point mentioned by Dr. Harris, but when it was remembered that cases of pancreatic cyst were more frequent in very fat subjects, and that there was quite uniform distention of the intestines, the stomach not being so much distended because of the pressure of the tumor, or, if so, it was entirely out of its normal location, it was difficult, if not impossible, to isolate the transverse colon and the stomach. He had never succeeded in getting any benefit from artificial distention in other cases, although he did not try it in this case.

Accidental Perforations of the Uterus.—Dr. D. S. Fairchild, of Des Moines, Iowa, said that the use of the sound and the curette in gynecological practice was probably the most frequent cause of this accident in legitimate practice. The facility with which the sound could be used in exploring the interior of the uterus and in repositing a retrodisplaced organ was no doubt responsible for some of these accidents. The curette, however, was often used in an indiscriminate manner and as a routine treatment in a great variety of uterine difficulties that could be better treated by other means with a greater prospect of permanent results. He mentioned a case that came under his observation this year which illustrated the ease with which a perforation of an apparently healthy uterine wall could be accomplished, and what was needed in cases of this kind.

Dr. W. L. Bullard, of Pawnee City, Neb., mentioned two cases of perforation of the uterus, one of which was produced by a crochet hook of the ordinary size. An attempt was made to find the hook, but without avail. The patient was left alone. Six months after this she became pregnant, and the crochet hook was discharged through the anterior abdominal wall. Two months later the product of conception was expelled in the natural way.

Treatment of Gastric Ulcer.—Dr. H. D. Niles, of Salt Lake City, Utah, in a paper on this subject, presented the following conclusions: (1) Post-mortem statistics, clinical experience, and recent operating-room observations all tend to confirm the belief that neither the frequency nor the grave importance of gastric ulcer is fully appreciated by the profession generally, and the majority of cases are not recognized as such in life. (2) An earlier and more positive diagnosis means greater alertness in our observation and interpretation of symptoms, and more frequent exploratory operations. (3) In the history of every benign or malignant ulceration situated in a safely accessible region, there is always a time when the pathology can be corrected or favorably modified by appropriate mechanical means. (4) Up to the present time the recognized indications for operative procedures in gastric ulcer have been the symptoms produced by the remote resultant pathology, as hemorrhage, perforation, pyloric obstruction, cancer, etc., but our aim in the future should be to make an earlier diagnosis and by the timely application of a rational treatment prevent the occurrence of these later and more serious manifestations of ulcer. (5) Taking into stricter account the local etiological factors will undoubtedly aid us in the prevention, diagnosis and treatment of gastric ulcer. (6) The causative pathology deserves more consideration in the surgical treatment of gastric ulcer than it has yet received. (7) Perforation always demands the promptest surgical interference. (8) Hemorrhage from gastric ulcer is best treated by gastro-jejunostomy. (9) Open or cicatrized ulcers near the pylorus always indicate rest for the parts and a sufficient outlet for the stomach contents. (10) A posterior gastro-jejunostomy with sutures accomplishes these objects with the minimum risk and the most satisfactory results, and hence should usually be the operation of choice. (11) Our future advancement in the treatment of gastric ulcer must come from an earlier recognition and better understanding of the antecedent coexisting and resultant pathological processes rather than from any further refinements in operative procedures.

Etiology, Symptomatology and Diagnosis of Gastric Ulcer.—Dr. Frank C. Davis, of Des Moines, Iowa, said that clinically the simple ulcer was not so frequent as the statistics of post-mortem examinations would lead one to expect, being from six per cent., as diagnosed by Lebert, to .82 per cent. as observed by Fenwick. In the extensive records collected by Welch, ulcers cicatrized or open was in about five per cent. of persons dying from all causes. Fenwick, from the examination of nearly 48,000 post-mortem records, found scars or ulcers in 4.2 per cent., and in 20,000 autopsies of persons dying from various causes, open ulcer in 1.5 per cent. If one took even the lowest percentage as found post-mortem, namely, 1.5 per cent., it would be seen that every other case was undiagnosed in life. Clinically and pathologically the author classified gastric ulcer as acute, acute secondary, and chronic. Each classification was expatiated upon. Hematemesis was a sign of such unmistakable value that one only needed to exclude a few other sources for the blood to establish a diagnosis by it alone. The symptoms of acute and chronic ulcer were detailed. A conservative estimate of perforation placed it at about 5 per cent. It occurred most frequently in females, which might be accounted for by the fact that many more women suffered from the acute ulcer, and that the chronic ulcer developing from the acute was more liable to perforation. The accident might occur suddenly or be preceded by an increase of pain and vomiting, or by a vomiting of blood.

Perforating Gastric Ulcer.—Dr. Archibald MacLaren, of St. Paul, Minn., said that perforating gastric ulcer was fully as common as extrauterine gestation, and that when the eyes of physicians were opened to this fact, they would be able to see them, diagnose them early, and save many lives that were now lost. In this country he did not believe that the perforation cases reached the hospitals as often as they did abroad. His experience left him to believe that Dr. Richard Harte was correct when he said that rigidity or tension of the abdominal muscles was the keynote to the early recognition of peritoneal perforation from whatever source. The pain might subside, the temperature might not be elevated, but the rigidity continued even up to the end. He believed that many cases could be correctly diagnosed, as was proven by a few cases which he reported, and by the many cases which were constantly being published in the journals.

Dr. Charles W. Oviatt, of Oshkosh, Wis., mentioned the case of a man, sixty-two years of age, a laborer, who had never complained of any symptoms of gastric ulcer. He had eaten a hearty meal, laid down on the lounge feeling perfectly well shortly after, but within an hour he rolled over to the floor with agonizing pain. A physician was called, who gave large doses of morphine hypodermically, without any benefit, and the patient died within a few hours. Post-mortem examination revealed a perforating ulcer in the posterior wall of the stomach which seemingly had attempted to heal. There was no blood in the stomach but the abdominal cavity was filled with stomach contents.

Dr. Charles H. Mayo, of Rochester, Minn., said that after examining 1,100 stomachs by test meals, laboratory testing and physical examination, anemia was a very important factor; next, long-continued neuras-

thenic symptoms. He mentioned one authority who, in examining 2,200 cases at autopsy, found that twenty per cent. of women showed signs of ulcer of the stomach, and only 1½ per cent. of men. Welch, in an examination of eight hundred cases of gastric ulcer, found 60 per cent. in women, and 40 per cent. in men. The speaker and his brother had operated on approximately 400 cases, and of 1,500 cases of stomachs examined, they had found that the proportion was about the same as that given by Welch. Welch also found in an examination of 788 cases of ulcer of the stomach that only 28 occurred in the greater curvature, so that the greater proportion of them were fund in the pyloric end of the stomach. Of cases of cancer of the stomach, Dr. Mayo had elicited a history of chronic ulcer covering a period of from one to fifteen years. His statistics showed 88 per cent. of gastric ulcer, and 12 per cent. of duodenal ulcer. The tendency was more and more to class the first two and a half inches of the duodenum as a part of the stomach. In 31 cases of acute perforation of the stomach and duodenum, 11 occurred in the duodenum in this first 2½ inches, and he had operated on 26 cases of ulcer of the duodenum.

Dr. M. L. Harris, of Chicago, said the extensive experimental work of Futterer showed it was impossible to produce gastric ulcer in an animal until the hemoglobin of the blood had been reduced below a certain point; that all lesions of the mucosa produced in healthy animals readily healed. When the hemoglobin was reduced below a certain point, producing a marked anemia, then these lesions developed into typical ulcers. These observations showed the importance of an examination of the blood in these cases. Another point was the examination of the feces for hematin crystals, as a means of diagnosis in obscure cases of gastric ulcer.

Treatment of Hematemesis by Gastro-enterostomy with Report of a Case.—In a paper on this subject, the author, Dr. F. Gregory Connell, of Leadville, Colo., classified the operative treatment of hematemesis into direct and indirect. Under direct he included (1) excision of the ulcer; (2) partial gastrectomy or pyloroplasty; (3) ligation of the principal artery; (4) cauterization or curettage of the ulcer; (5) ligation of the mucous membrane, and (6) ligation of all coats. Under the indirect he mentioned (1) gastro-enterostomy; (2) pyloraplasty; and (3) gastrotomy. After considering the direct method as a whole, he stated that these were not in common use, because of such objectionable features as the difficulty of locating the ulcer, the fact that the lesion was frequently multiple, the presence of firm and complicating adhesions, and the indistinct limitations of the pathological tissue. The high mortality rate of some and the impracticability and unreliability of others had been the cause of a general turning to the indirect method, as exemplified by gastro-enterostomy. The manner in which a gastro-enterostomy allowed an ulcer to heal was well understood and practically settled, but as to this same operation acting as a hemostatic measure, no such substantial reasons as those advanced for the healing could be presented. While rest and drainage undoubtedly favored clotting and the cessation of hemorrhage from small blood vessels, it was difficult to understand how they could arrest hemorrhage from a large artery with a lateral opening, as in the case reported. As one was unable to determine with any degree of accuracy the nature or the source of the hemorrhage, gastro-enterostomy was indicated only after a thorough search for the bleeding point. The exact status of gastro-enterostomy in hematemesis was not well defined, as was shown by numerous quotations. It had been said that a search for the bleeding point was futile, harmful and unnecessary, and that a gastro-enterostomy would without doubt prevent recurrence of the hemorrhage. To show that gastro-enterostomy would, without doubt, prevent recurrence of the hemorrhage, the author reported one case and cited others from the literature. Gastro-enterostomy was indicated in hematemesis (1) after a thorough search had failed to reveal the source of the hemorrhage. (2) Where the source of the bleeding was discovered, but in such condition as to make direct treatment impracticable or impossible. The conclusion, based upon a sad experience and a review of the literature, was an endeavor on part of the author to discountenance the idea, which had become quite prevalent, that nothing was to be gained by searching for the bleeding point, as gastro-enterostomy was all that would be necessary to prevent recurrence of the hemorrhage.

Two Cases of Acute Hematemesis in which Gastro-enterostomy was Performed.—Dr. Leonard Freeman, of Denver, Colo., detailed a case in which he performed a posterior gastro-enterostomy. A Murphy button was employed, having the end within the stomach smaller than that within the bowel. The stomach contained bloody fluid. Recovery was uninterrupted. The button was passed on the twenty-third day. There was no further hemorrhage. About seven months later this patient suddenly died from hematemesis, the hemorrhage having begun about three months after the operation, small quantities of blood being frequently vomited subsequently. In Case II. a posterior gastro-enterostomy was done, and a Murphy button used, the ends of which were of unequal size. The stomach showed no external sign of ulcer, and no internal exploration was attempted. The organ was markedly dilated with gas and fluid. Reaction from the operation was so satisfactory that hopes of recovery were entertained; but in spite of no recurrence of the hemorrhage, death occurred at the end of fifty hours, due apparently to the great loss of blood. Autopsy revealed an ulcer as large as a watermelon seed on the posterior wall, at the junction of the lower with the upper two-thirds of the stomach. A small atheromatous artery, plugged by a thrombus, could be seen in the floor of the ulcer.

Dr. O. Beverly Campbell, of St. Joseph, Mo., said, in regard to the closure of the opening made in gastro-enterostomy by the suture method, he had performed 16 experiments on dogs. In 12 he used the Kocher method of suturing, and in all of them he did an anterior gastro-enterostomy. The opening in each instance was quite large. The dogs were reoperated at periods of from three to six months, and at the end of three months in six cases the opening was reduced to such an extent that the index finger could not be passed through it without a little force. In six of the cases there was almost total obliteration of the opening at the end of six months. In four there was a slight opening through which only a small probe could be passed. A vicious circle was established in 40 per cent. of the cases. These experiments showed a tendency, where there was no obstruction at the pylorus, for the opening to close, whether it was made with the Murphy button or by the suture method. A larger opening was obtained if the Connell suture or the Kocher suture was used, and in every case the speaker made a rather large opening. Six dogs, in which a vicious circle was established, began to fail in flesh at the end of about two months, and at the end of the third month they were opened and a vicious circle found. In every instance there was more or less narrowing of the opening.

Dr. Charles H. Mayo reported a case in which

gastro-enterostomy failed to arrest hemorrhage. During the past year he operated upon a man forty years of age, who gave a history extending over a few years of occasional stomach disturbance and vomiting of blood. By the laboratory test a little blood was found in the stomach. At the operation, in examining the stomach, he did not find any external evidence of the ulceration. The stomach was dilated. He did a gastro-enterostomy, but there was more hemorrhage after it than before, and the man died at the end of four days. He was very anemic at the time of operation. At the autopsy the intestines were found filled with blood. The gastro-enterostomy was a posterior one, after the Mikulicz method, and the line of suturing was perfect. There were no large ulcers in the stomach, but there were two or three points of erosion.

The Correction of Retrodisplacements of the Uterus.—Dr. Charles W. Oviatt, of Oshkosh, Wis., in a paper on this subject referred to the many operations devised for correcting uterine retrodisplacements. He stated that whatever the operation selected, it should permit of thorough intrapelvic work and should be one that restored the normal axis of the uterus, at the same time leaving it free to adapt itself to its normal range of motion. The operation he described as meeting these requirements was that devised by Dr. George H. Noble, of Atlanta, Ga. A description of the Noble operation could be found in medical literature. During the last year the author had made this operation 23 times. In all but three, there were intrapelvic or other complications. In ten, the appendix vermiformis was removed either because of a history of definite recurring attacks of appendicitis, or because from its appearance it was deemed wise to remove it. In one case a broad ligament cyst was removed, and in several diseased appendages were taken out. These were mentioned to show that there was no difficulty in doing any necessary intrapelvic work through the transverse incision and separation of the recti muscles. In all the cases, local office treatment by means of tampons or pessaries had been resorted to without relief. Most of the cases were in women who were obliged to work and who preferred to undergo an operation rather than submit to further treatment. The three uncomplicated cases were marked neurasthenics with dysmenorrhea. While the displacement remained corrected, there had as yet been no improvement in the dysmenorrhea, and little or none in their general condition. There were no deaths or serious complications following these operations. The advantages of the operation were: Through the one incision any pelvic complication might be treated. The operation utilized the strongest part of the round ligament instead of its distal end. The normal mobility of the uterus was not disturbed, and it was left in the pelvis where it belonged. It caused no bladder irritation and no dragging because the traction on the ligaments was in the direction of their natural course.

The Surgical Treatment of Goiter.—Dr. Charles H. Mayo, of Rochester, Minn., in discussing this subject, said that the respect American surgeons held as to the ability of Continental surgeons was to a considerable extent due to their statistics on goiter. To the peculiar formation of the capsule of the thyroid were due many of the symptoms occasioned by enlargement. Closely investigating the gland, it divided posteriorly and also enclosed the trachea, esophagus, and part of the pharynx. Accessory glands were not uncommon in the lines of inversion from the pharynx in the original formation of the organ. It was probable that the lymphatic system acted as its duct, and a study of the function of the lymphatics would explain some factors in the etiology of diseases of this body. In young people at the age of sexual activity, enchymatous goiters were quite common, but, as a rule, readily responded to treatment. Reverdin, in an analysis of 3,408 cases, placed the mortality from total extirpation at 19 per cent.; partial, 3½ per cent.; from intraglandular enucleation, at .78 per cent.; from resection, at 6.6 per cent. The writer's experience was derived from 108 operations upon thyroid tumors. Of these, there were 34 exophthalmic cases, with 6 deaths; 2 malignant, with 1 death; one large lingual thyroid. Two cases presented separated tumors of the pyramidal lobe. There were 71 cases of cystic, colloid, adenomatous and mixed types of goiter operated upon, with one death, from pneumonia, on the eighth day. The recurrent laryngeal was permanently injured once, and its function temporarily impaired several times. The Kocher collar incision was ordinarily used and a free exposure of the gland made. The overlying muscles were either tracted aside or severed, according to the case. If the capsule was thickened over the local tumor, or whole gland, the Socin method of enucleation was commonly employed. If the gland retained its general form, the largest lobe, usually the right, was extirpated, frequently leaving its posterior capsule to protect the laryngeal nerve. Ether anesthesia was usually employed. Occasionally cocaine was used locally, if there was much tracheal disturbance or severe exophthalmic symptoms. Chloroform was rarely given. All anesthetics were preceded by a hypodermic of morphine. Some thyroidism usually followed for one to three days.

Intestinal Perforation in Typhoid Fever.—Dr. Byron B. Davis, of Omaha, Neb., referred to the statistics of Taylor, Osler, Finney, Keen, and others, and said that even under the past dilatory tactics the results had been very gratifying. The first 24 operations for typhoid fever reported showed six recoveries, or 25 per cent. When it was considered that a very large number of the operations thus far reported for typhoid fever had not been done until general peritonitis had been fully established, 50 per cent. of recoveries did not seem unreasonable, if operation was done before the advent of the peritonitis. The latest statistics from Johns Hopkins gave 41 per cent. of recoveries. There they were striving to operate for the perforation merely, but several cases were recorded with a fully developed peritonitis. Another point affecting the mortality was that a small per cent. of the cases dying after operation did not die from the operation *per se* or the perforation, but as a result of the general typhoid infection. The author thought such cases should not be charged against the operation.

Dr. A. I. Bouffleur, of Chicago, referred to the differential diagnosis between perforation and hemorrhage. One case operated on by him was one in which there was a difference of opinion as to whether or not hemorrhage or perforation was present. This case occurred several years ago, before the value of a blood count was emhasized. Operation was performed, and the patient recovered. The case emphasized the point that even in cases of doubt as to whether there was perforation or marked hemorrhage, operation was not necessarily fraught with serious danger.

Surgical Treatment of Nephritis.—This was the title of the President's Address, delivered by Dr. Alexander Hugh Ferguson, of Chicago. Reference was made to the early history of this subject, and to the priority of the operation. The author added three cases to those he had already published of renal decapsulation and puncture for active diffuse nephritis. In looking over the literature, the author finds that the causes of death after the operation in 123 cases, by different surgeons, were as follows: Four died of pulmonary edema;

6 of uremia; 4 of coma; 3 of sudden heart failure; 3 of exhaustion, and 1 each of endocarditis, suppression of urine (ether being used), anuria, general dropsy, collapse, pleuritic effusion, and myocardial thrombosis. There were 27 deaths out of 123 cases within a year after the operation. A closer analysis shows that of these 27 deaths, 6 died within 18 hours after the operation; 9 between one and nineteen days; 2 between two and seven weeks; 3 between two and three months, and 1 lived a year. The vast majority of these deaths should not be attributed to the operation. Even allowing all deaths within a week to be due to the operation, there would be a mortality of only about nine per cent. When the limitations of the operation were more clearly defined, and many of the extreme cases left alone, the author thought the mortality should not be more than five per cent. in the hands of experienced surgeons. It was fair to conclude that the earlier an operation was performed in these cases, the less would be the fatality, and the greater the benefits.

(To be Continued.)

JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Stated Meeting, held January 4, 1904.

Effect of Altitude on Blood Corpuscles and Blood Plates.—Dr. G. T. Kemp, of the University of Illinois, read this paper, in which the conclusions reached during a trip to Colorado for the study of the blood were reported. Observations on the blood of six healthy individuals were made at varying altitudes on the plains, at Cripple Creek and on the summit of Pike's Peak. The well-established fact, known since the time of Behr and Biot, that rise in altitude causes an increase in the red blood corpuscles, was illustrated in the counts made on this expedition, but at the summit of Pike's Peak, in addition to this text-book increase, a marked variation between the morning and afternoon count was noted. Early in the day the red blood corpuscles were much higher than later and in one case this difference, which was always over 500,000, amounted to 1,000,000. In a general way the hemoglobin curve followed that of the reds, but not exactly; and the variations of the hemoglobin were less marked than in the corpuscles. For this reason when the corpuscles were markedly diminished in number each one was carrying a high percentage of hemoglobin. The ratio of the blood plates to the reds (normally 1 to 15) was fairly high in Illinois. At Cripple Creek an enormous fall took place, signifying of course a marked increase in the number of plates. This fall which continued during the stay in a high altitude was more marked, more regular and of longer duration than the changes in corpuscles or hemoglobin. This fact would seem to point to a new and safe and more constant indication as to the blood condition in the ratio of plates to corpuscles. As to the nature of blood plates Dr. Kemp's work tends to favor Hayem's theory —that they are hematoblastic; for after the increase in plates had continued for a while hemoglobin was found in them both by ocular and chemical tests. By artificial gastric digestion Dr. Kemp found that the platelets are rich in nuclear matter relatively to the corpuscles. The leucocytes were not affected by the altitude and it looks as if the blood plates had some genetic relation with the reds but not with the whites. In counting the plates an extremely small amount of blood must be drawn and a drop of methyl green (containing some formaldehyde for fixing purposes) placed over it. The count should be made with a one-twelfth oil lens.

Dr. Welch, in the discussion, said that in disease the platelets vary greatly in number, so that in any case one has to know the normal for that individual to draw any inference as to the number of red blood corpuscles. "Platelets" is not an exact term. He agrees with Arnold, who lays some stress on the granular material of the blood.

Dr. Osler remarked that large numbers of blood plates are seen clinically in two classes of patients; first, in the new-born, and second, in every case of marked cachexia. They are not, however, present in large numbers in cases where there are evidences of blood regeneration. He has never seen a platelet containing hemoglobin, the only point about which he is sure, being that, whatever their origin, the blood platelets are a definite morphological element of the blood.

Vaccine and Vaccination.—Dr. Dock, of Ann Arbor, Mich., read this paper. No method for the determination of the dose for vaccine has ever been devised. We measure it roughly by the lesion produced or by the degree of immunity conferred, but the existence of normal immunity makes the latter method quite inexact. In the early days the so-called lymph was obtained from spontaneous cowpox. Next humanized virus was used, being passed from arm to arm (in one case for forty-four years). But it was found that the lymph eventually died out and so cowpox or accidental horsepox was used as its source. Later retrovaccination was done with the idea of increasing the virulency by changing the medium. In the next few years humanized serum was used, but the transference of syphilis told against this method. In the early days the lymph was dried between glass plates, on linen threads, glass stoppers, quills, lancets and even thorns. Capillary tubes were also used early in the history of vaccination. The lymph has been applied in various ways—by actual incision, by hypodermic injection and by forcing it under a blister artificially produced. The vaccine pulp contains (beside the liquid) leucocytes, fat, specific and accidental germs; but in spite of the objections to it it is always used in Germany where vaccination is thorough and successfully done. In the preparation of vaccine, young calves—usually females—are used. After previous washing and inspection linear scarifications are made (usually on the abdomen), with aseptic precautions. The seed virus, either of cow or human pox, is then smeared on. In a few days the vesicles form, the skin is again washed and pulp is collected by scraping with a curette. The lymph was formerly mixed with various antiseptics, but now nothing but glycerin is used. In the United States there is absolutely no control over vaccine manufacture, and Rosenau showed that much of the lymph in circulation is badly contaminated. As to the method of vaccination, the scab should not be too large, nor should it be too superficial. In Germany an incision is used entirely, and this method is a very good one. Glycerinized lymph gives a small bacterial content with good specific properties.

Dr. Welch, in the discussion, said that tetanus has undoubtedly been carried by vaccine lymph, for the inoculation experiments to the contrary are by no means satisfactory. Certainly inflammatory conditions are so carried and this fact is a national disgrace. A board of health having control of vaccine manufacture throughout the country is badly needed.

Stated Meeting, held Monday, January 18, 1904.

Results of Some Recent Experiments on Blood Pressure.—Dr. Erlanger read this paper. The pressure usually estimated is the maximum pressure, but the difference between this and the minimum pressure (a quantity which Dr. Erlanger calls the pulse pres-

sure) is, he has found the most important thing to determine. It measures the velocity of the blood flow, corresponds to the mean blood pressure and is nearer the minimum than the maximum. It was found that in the apparatus usually used to measure blood pressure the variations in the size of cuff lead to inaccuracy in the results; for by determining the intra-arterial pressure (which is, of course, the true blood pressure), the readings when a narrow cuff was used were found to be always too high. By placing the cuff on the bared artery this elasticity error was found to be in the tissue, and it was shown that when we determine blood pressure clinically in the brachial artery we practically measure it in the aorta. A case of postural albuminuria was studied with reference to arterial pressure, and it was found that with the patient recumbent the pressure was lowest, that it rose on standing and fell again on sitting. The maximum pressure, however, showed practically no changes with the posture. The pulse rate varied inversely with the pulse pressure, but the volume of the arm used in the determination varied directly with the pressure. The albuminuria disappeared when the patient sat or lay down, but was present when he stood, and the angle at which it appeared was found to be 30°, the place at which pressure changes were first noticed. It was found that increased pulse pressure gave a diminution in the urine output with an increase of the solids and the nitrogen. Albumin in the urine means a lowered vitality of the renal epithelium, but these experiments suggest that the circulatory changes may be the primary factor. The pulse pressure and not the maximum pressure, which is the quantity usually estimated, is the important feature in blood-pressure work. Dr. Futcher referred to a recent case of cyclic albuminuria in which a fairly large albumin content with a high blood pressure changed, by means of rest in bed, to a trace of albumin and a pressure of 112 mm. of mercury.

Mental Symptoms Connected with Distinct Visceral Changes.—Dr. Carey Gamble reviewed Dr. Head's recent paper. Head divides the symptoms into hallucinations, moods of depression, etc., suspicions, loss of memory and attention and active insanity. Dr. Gamble reported several cases which seemed to agree with Dr. Head's theory that insanity is nothing more than mental wrongness and due to visceral changes. The first was a case of mitral stenosis with hallucinations of sight occurring in the morning, and after attacks of pain. In another patient asthma was associated with olfactory disturbances in which coffee gave the sensation of H_2S. Another showed auditory delusions with periods of depression. In this case the visceral changes were adherent pericarditis. Two of the cases with stenotic lesion of the mitral valve expressed their mental changes in periods of depression and exaltation and moods of suspicion. In one patient associated with asthma and emphysema there was a loss of attention and memory and great unreasoning fear. Depression with arteriosclerosis and hallucinations with aortic insufficiency were the other two cases in the series.

Dr. Paton called attention to the fact that the mental symptoms following acute diseases may be either the ordinary neurasthenic conditions, which are stable in character, or the so-called psychasthenic conditions; and we know of no explanation why they should assume one character rather than the other.

Periureteral Arterial Plexus.—Dr. Sampson read a paper on this subject. His attention had been called to this anatomical feature by the importance of the ureters in operations for carcinoma of the cervix. The plexus is supplied by the ovarian, renal, uterine, vaginal and iliac arteries and also gets direct branches from the aorta. The anastomosis is free and any vessel in the plexus may be injected from any other. Dr. Sampson found that when the smaller branches which are intimately connected with the ureters were stripped off and slight damage done to the ureter necrosis occurred. Clinically the ovarian, internal iliac and uterine arteries have been tied with the idea of reducing the blood supply of malignant growth and no necrosis has followed. This is, of course, easily explained by the part which the renal artery takes in the formation of the periureteral plexus. The pelvic portion of the ureter is inclosd in a fibrous sheath and one must, in operating on a carcinomatous uterus, guard against any interference with the periureteral plexus and any undue insult to the fibrous sheath in which it runs.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

Report of the State Board of Health of Wisconsin. 8vo, 304 pages. Madison, 1903.

The Blues. By Dr. A. Abrams. 8vo, 240 pages. Illustrated. E. B. Treat & Co., New York.

Pathogenic Microbes. By Dr. P. Jousset. 12mo, 192 pages. Boericke and Tafel. Philadelphia.

The Self-Cure of Consumption. By Dr. C. H. Davis. 12mo, 176 pages. E. B. Treat & Co., New York.

Anatomy Applied to Medicine and Surgery. By Dr. D. E. Mundell. 499 pages. British Whig, Kingston, Jamaica.

Annual Report of the Commission of Education. 1902. Vol. I. Government Printing Office, Washington, D. C.

The Prevention of Consumption. By Dr. A. Hillier. 12mo, 226 pages. Illustrated. Longmans, Green & Co., New York.

Bacteria, Yeasts and Molds in the Home. By Dr. H. W. Conn. 12mo, 293 pages. Illustrated. Ginn & Co., Boston.

Normal Histology. By Dr. J. R. Wathen. 12mo, 229 pages. Illustrated. Lea Brothers & Co., Philadelphia and New York.

Elements of Surgical Diagnosis. By Dr. A. Pierce Gould. Third Edition. 12mo, 607 pages. W. T. Keener & Co., Chicago.

The Practical Care of the Baby. By Dr. T. W. Kilmer. 12mo, 158 pages. Illustrated. F. A. Davis Co., Philadelphia.

Disinfection and Preservation of Food. By Dr. S. Rideal. 8vo, 494 pages. Illustrated. John Wiley & Sons, New York.

The Purin Bodies of Foodstuffs. By Dr. I. W. Hall. Second edition. 12mo, 201 pages. Sherritt & Hughes, Manchester, England.

Organic and Physiologic Chemistry. By Dr. A. McGlannan. 12mo, 246 pages. Lea Brothers & Co., Philadelphia and New York.

Manual of Medicine. By Dr. T. K. Munro. 8vo, 901 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

Compend of Diseases of the Eye, Nose and Throat. By Dr. J. J. Kyle. 12mo, 280 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

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ORIGINAL ARTICLES.

THE ECONOMIC VALUE OF MEDICAL SCIENCE.*

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UPON this the occasion of the fifty-sixth anniversary of its foundation, the New York Academy of Medicine has every reason for congratulation upon its material success and for just pride in the honored position which it has won among the highest public institutions of the city. Comfortably housed in a well-appointed home, it has gathered in its library the medical lore of every country and every age, a collection widely famous for completeness, as it is for admirable arrangement and convenience of access. In its rooms may be met the expounders of the best medical thought of the day, and generous alike to members and non-members, the Academy extends its privileges to other societies and welcomes the stranger within its gates. Such a truly democratic institution, always free from the domination of any particular sect, vigorous, self-supporting, accessible alike to young and old in the profession, and as eager to work for the service of the community as to benefit its own members, cannot fail to command a high degree of public respect and confidence. It is this ever-broadening relationship of medical science to large public interests which forms the theme of discourse this evening, with special reference to "The Economic Value of Medical Science."

Unquestionably the most far-reaching economic benefit derived in recent years from medical science lies in the fact that the public are being taught not to flee from epidemics and pandemics, but remain to intelligently combat them. The wild stampede of whole communities, the shotgun quarantine with all its horrors, the utter paralyzation of all commercial interests in the face of an epidemic threatening from a foreign shore, are conditions forever past and replaced by measures so mild in contrast that they would be almost ludicrous in their simplicity, were they not so powerful in their effects. Thus, in many instances, instead of indefinitely quarantining the patient and destroying all his personal property, we quarantine the mosquito, destroy the rat, or boil the water in which we have learned to recognize the source of danger.

During the 100 years from 1798 to 1898 more than 80,000 deaths from yellow fever were reported in this country. J. F. Rhodes, in his "History of the United States" (Vol. IV) writes that as late as 1853 the mortality from yellow fever in the localities in which it prevailed, rivaled that of the Great Plague in London. In New Orleans, in an epidemic which lasted for three months: "It was impossible to bury the dead. Men went about in carts knocking at every door, and crying out, 'Who have dead to bury?'"—How inconceivable such a condition appears today, after a period of only fifty years! At a still earlier time such epidemics prevailed as far north as Philadelphia and New York. John Bach McMaster writes in his "History of the People of the United States" (Vol. I, pp. 30, 31): "Every few years during the dog-days the yellow fever raged with more violence in the Northern cities than it has ever done in this generation in the cities of the Far South. Whole streets were depopulated. Every night the dead-cart shot its scores of corpses into the pits of the Potter's field."

The mode of propagation of the bubonic plague is now understood and in India it is claimed that the use of Haffkine's serum reduces the susceptibility among those exposed to this infection 75 per cent., and the mortality of those attacked is reduced by 90 per cent. The cases of plague which reached Glasgow in 1900 were so successfully dealt with that the advent of a disease which formerly would have completely inhibited the commerce of a great port, produced no more than passing mention in the public press; and the few cases which have appeared in San Francisco and the quarantine station of New York in recent years have created no undue alarm. It is a hope, fully capable of realization, that soon the plague may be confined permanently to its home in the valley of the Euphrates, as cholera bids fair to be restricted to the valley of the Ganges, and even there these scourges may yet be vanquished, if they can be deprived of their only allies, ignorance and prejudice. Typhus fever and leprosy have been practically exterminated from many countries which were formerly ravaged by them in disastrous epidemics. Malaria is now to be reckoned as a preventable disease, capable in time of extermination from any community. It is easy to estimate the cost of this disease in a given locality and demonstrate the financial saving which would accrue from its extinction. Ricchi ("Malaria According to New Researches") states that the Adriatic Railroad Company, employing more than 6,000 men, loses over 1,000,000 francs a year from incapacity of its laborers caused by malaria. Angelo Celli (in "Malaria According to the New Researches") estimates the mean annual mortality in Italy from malaria at 15,000. There are besides 2,000,000 cases of the disease per annum, and 5,000,000 acres of land are rendered unfit for cultivation through this scourge.

* Anniversary Discourse, delivered at the New York Academy of Medicine, November 19, 1903.

Local epidemics of infectious disease, as well as infant mortality, are being markedly lowered wherever medical science has been intelligently applied and the mortality in large cities throughout the world is undergoing constant reduction. In New York City, for example, a century ago the annual death-rate was fully 30, and probably much higher, if allowance be made for the imperfect statistical records of the period. To-day it has been reduced below 18.5, despite the conditions of overcrowding and pauper immigration which characterize the modern development of the city. In the early days of the past century a large proportion of persons above twenty years of age were deeply pitted by smallpox, yet how rarely one meets a face so disfigured to-day!

Interesting computations have been made regarding the financial cost to the community of tuberculosis. Among such calculations is one published in a recent circular of the Imperial German Health Bureau, which is as follows: About 90,000 persons between fifteen and sixty years of age die yearly from tuberculosis in Germany. Suppose that one-tenth of such persons could be restored to comparative health through sanatorium treatment, and live three years longer to support their families. Upon the low wage-earning basis of $150 per patient per annum, after deducting the cost of maintenance of public sanatoria, it is estimated that the net gain to the State would amount to $2,000,000. As a purely business proposition, such a tuberculosis "trust" might prove as profitable as other life insurance enterprises. Even without such Utopian governmental aid, medical science is quietly working for the same economic end, and, to use a single illustration, within the past decade in the State of Massachusetts alone, the mortality from tuberculosis has been reduced by exactly one-half.

Typhoid fever and epidemic dysentery are now known to be completely preventable, and it is no fault of the science of medicine if the public does not always adopt the simple measures which would result in such an economic gain.

In Calmette's antivenene is another illustration of a medical discovery which may prove of great economic worth. In India 22,000 persons die annually, and 60,000 cattle die from bites of the poisonous ophidia. Many such deaths might be now preventable by prompt inoculation with antivenene.

Not least among the important aspects of medical science is the amount of capital invested in buildings and appliances for its pursuit and application, an amount exceeding that of any other pure science. Thus, in the medical and pharmaceutical colleges, research laboratories, health department bureaus, hospitals, asylums and training schools of this country alone several hundred million dollars are permanently invested in buildings, land and equipment, and scores of millions more are to be reckoned in endowment funds. At the present time the 125 "regular" medical schools of this country possess property valued above $18,000,000 and endowment funds exceeding $8,000,000. It is interesting to note that the schools of theology, while possessing property of nearly equal value with those of medicine, enjoy five times the endowment funds. The schools of law, requiring much less elaborate equipment, represent an investment of $1,500,000 in property and $500,000 in endowment funds.

To the value of medical college property may fairly be added that of the colleges of pharmacy, amounting to three-quarters of a million more in buildings and nearly $20,000 in endowment. The value of the 433 hospitals alone which maintain nurses' training schools exceeds $73,000,000 and their endowment exceeds $18,000,000. These figures represent probably less than one-fourth of the total hospital wealth, for many of the lesser hospitals are without training schools.

In the United States the 29 schools for the feeble-minded represent a property valuation of more than three and one-half millions. The 114 schools for the deaf own over $12,000,000, and the 37 schools for the blind $6,250,000 worth of property. These are all institutions which owe their origin largely to the development of medical science and which are, for the greater part, operated under constant medical surveillance and advice. I have not cited figures for the valuation of asylums for the insane and many special institutions, such as "diet kitchens," "fresh-air" institutions, convalescent houses, etc., which have derived their initiation from medical science, but have quoted data sufficient to demonstrate that three or four hundred million dollars is a conservative estimate for the vast property interests which, in this country alone, have grown up mainly during the past two generations from the co-operation of medical knowledge with humanitarian aims. How great is the need that these interests be fostered and expanded under intelligent guidance of the highest scientific order!

Turning to a more strictly mercenary, yet no less important resultant of medical progress, there should be added to the account the millions invested in the exclusively medical products, *i.e.*, the manufacture of antiseptics, disinfectants and legitimate pharmaceutical preparations, in surgical instruments, dressings and appliances, and instruments of precision. Collectively this enterprise, of quite recent development, constitutes a commercial factor of no mean proportions.

One of the great economic achievements of modern medicine, consists of the scientific study of the more or less helpless members of the community, the blind, deaf-mute and crippled, with a view to improving their condition and rendering them less of a burden to the tax-payer or the State. In 1817 the first school for deaf-mutes was opened in this country with 12 pupils. In 1900 there were 114 schools with 10,000 pupils. Recently the American Otological Association has assumed the systematic examination of all such pupils in the United States with already gratifying results

The munificent gift of Mr. Widener of

$2,000,000 for the establishment of a school in Philadelphia for the care and training in self-support of cripples has already led, in the eight years since its foundation, to the organization of similar schools in five other cities. It would be manifestly unfair to attribute the origin of such enterprises as these, exclusively to the influence of medical science in distinction from purely humanitarian motives, but without medical supervision they would be imperfect and incomplete.

The achievements of psychological physiology and pathology have not only produced a revolution in the science of psychology, but have accomplished many practical results in criminology and the treatment of the insane. For example, there is a marked tendency to make penal institutions less exclusively punitive and more instructive for the inmates. The solitary dungeon of medieval horrors has given place to penal institutions in which in many instances, there is attempt at rational classification of the inmates, and the influences of heredity, of environment and disease, are given their true weight. The health of prisoners is better cared for, and it is recognized that infection by tuberculosis should not be an inevitable outcome of protracted confinement.

Similarly in the care of the insane, the hopeless mad-house of old has, through medical enlightenment been replaced by well-ordered public institutions in which patients are not merely confined but are *treated,* with gratifying amelioration or cure of symptoms in not a few instances. It has been demonstrated that in nearly 90 per cent. of the insane the mind has become affected through errors of the body of the nature of chronic disease, alcoholism, or privation, errors which are often capable of early recognition and control.

In the department of hygiene and sanitation, medical science has newly established a wide field of industry. The public has been quick to adopt suggestions in this direction wherever they could be applied to profitable manufacture, but judging from the nature of the magnified advertisements which eclipse our landscapes, this phase of the matter is somewhat overdone. We are in less urgent need of patent "hygienic hair-brushes" than of intelligent methods of garbage disposal, less in need perhaps of patent foods than of proper policing our municipal water supplies throughout the country. Doubtless any genuine efforts toward improved hygiene are commendable, but it has long been the practice of mankind to prefer nostrums to cleanliness. The farmer still continues to drain the contents of barnyard and latrine into the household well, and then buy proprietary "tonics" for his ailing wife and children. But he will yet learn to mend his sanitary ways, as he is learning to mend his roads.

For the more serious problems of public hygiene and sanitation medical science is amply prepared to furnish definite, accurate rules which are completely practical and efficient, rules which cover every department—the hygiene of the person, of the home, of the school, municipal, rural, state, national, industrial hygiene, the hygiene of transportation, military and naval hygiene, and the hygiene of soils and climates.

It has been lately shown, especially in this city, that the place to check the spread of many infectious diseases is at the entrance to the public schools, and the prophylaxis of much anemia and nervous disease among school children is to be found in instructing their teachers in proper methods of heating, lighting and ventilating the school-room as well as in conditions of mental hygiene which will prevent strain, overwork and nervous collapse. Whether it be deemed wise or not to instruct the children themselves in rudimentary physiology and hygiene, their teachers should be masters of those subjects. By the impetus which medical science has given to these matters, the community may be not only spared many days of actual illness, but will find fewer weaklings among the rising generation of its citizens. In the hygiene problems of our large cities, we have much to learn and much to apply from the teachings of medical science. Medical science, the teacher, is ready, but the pupil, the public, is always late at school, if not an actual truant. In such case the more the economic, *i.e.*, the purely mercenary aspect of the situation can be emphasized, the more likely are many medical sanitary reforms to secure public adoption. Much has been accomplished, but still more remains, if we are to take the lead in matters hygienic and sanitary. For example, who shall say how our miles of subways are to be ventilated, for we have become a city of *boroughs* in more senses than one. Carbonic acid and other noxious vapors are heavier than air; how shall they be driven out and who wishes to live at the point where they are expelled? Why do we continually ride in public conveyances alternately closed to all needful ventilation or open to a raking end-to-end draught of ten miles an hour and crowded to the verge of indecency and physical injury? What is to be our sky-scraping future? To the vehicular perils of the street are added those of veritable tornadoes on windy days, and a sand-storm in the desert is not more dreaded than to face one of our antiquated uncovered ash-carts at such a time! The modern practice of building over almost the entire area of the lot makes it increasingly difficult to obtain sufficient sunlight and air for hygienic needs, especially for children, and in fact it is becoming more and more difficult for the well-to-do, whose children may not be turned loose in the streets, to furnish them with adequate exercise and fresh air, and maintain them in health throughout a winter's study. The atmosphere of hurry and tension which surrounds us all is difficult to dissociate oneself from and in many persons is productive of serious nervous strain. Such are but a few of the many local health problems which are the outcome of the increasing tendency to crowd into great cities, problems which were unimagined in the simpler life of our forefathers.

In the broader field of state, interstate and na-

tional quarantine there is also much to be accomplished. Both agriculture and commerce have preceded medical science in the establishment of national government departments with representation in the cabinet of the nation, but no earnest student of economics can fail to appreciate the value to the country—the purely commercial value, aside from the humanitarian—of giving to medical science the influence and force of that national authority in which the United States is still behind other nations.

No single municipality should be permitted to attempt the concealment, for its own unguided profit, of a pest-hole of a plague like the bubonic, as has lately been done in San Francisco. No State should be allowed to pollute with typhoid infection the waters of a stream flowing into an adjoining State, as occurred in the relationship between Pennsylvania and New York in the epidemic of Elmira. No town should be permitted to pour its typhoid-laden sewage, or, in fact, any sewage into inland lakes and streams, in selfish, nay criminal, disregard of its neighbors, as Ithaca has polluted the waters of Cayuga Lake. No town should be permitted to harbor a focus of smallpox infection through ignorance, or neglect of vaccination. With a National Department of Medical Science, endowed with reasonable and just authority, not only would such deplorable conditions soon cease but the other extreme of arbitrary, senseless quarantine, such as that lately proposed in the California Legislature against tuberculosis, would become equally impossible. Quarantine, both littoral and interstate, in so far as it might be needed at all, would be placed upon a rational basis of uniformity, and the commercial or economic gain would be incalculable.

One of the first duties of physicians should be to secure the establishment of local health boards wherever needed. They should insist that those who serve upon such boards should be men of scientific training, capacity and force, and finally, wherever such boards are in operation they should give them all the moral support and co-operation possible. By a system of prompt notification on the part of each practising physician and prompt response and ready distribution of statistical data on the part of the board, the confidence of the public will be won and its willingness to adopt sanitary reforms will be greatly promoted.

Another phase of this discussion is that of military hygiene and sanitation. It has been long recognized that in all protracted campaigns more men die from disease than from the implements of warfare. In active engagements this is to a great extent inevitable as a result of exposure to fatigue and hardship. One cannot profitably go to war in the tropics with a kerosene can and a bit of mosquito netting, as the Chinese do with a fan and paper umbrella, but in camp-life epidemics at least, are preventable. In 1897 (the year before the Spanish-American War), the Spaniards lost by death from disease in Cuba 32,532 men and 30,000 more were invalided home. A large majority of these deaths were due to yellow fever, typhoid fever, malaria and dysentery, all now known to be preventable diseases, and our marines at Guantanamo in the same country *did* prevent their occurrence absolutely the following year by simple sanitary precautions. The mortality from disease in early campaigns has been truly horrible. For example, in that of the English on the West African Coast in 1824 it was 69 per cent. of all men engaged; in that of the French in the Soudan in 1883-86 it was 28 per cent., yet in our own war with Spain it was only 2.5 per cent. and in Manila alone, 0.8 per cent. The disease mortality in the Crimea in 1854 was 23 per cent., but in the Franco-Prussian war in 1870-71 it was only 1.43 per cent. (Mosher). Of even greater importance to warfare than a low disease death rate, is the maintenance of a high standard of health efficiency among the men employed, and governments are realizing that the practical applications of medical science are as essential as proficiency in fighting. In the American Civil War the percentage of sick of the entire army was 20; in our last war in 1898 it was only 3.5. Even when due allowance is made for the different duration of these wars and the widely different conditions under which they were waged, the improvement in the general health of the men is very noteworthy.

The economic record of medical science in naval warfare is still more striking. In 1726 the British fleet in the West Indies, out of a mean strength of fighting force of 4,750 men, lost 4,000 from disease—a practical extermination of the force. In contrast is the report of the Surgeon-General of the United States Navy, covering the period of our war with Spain in the same tropical region, which shows better average health prevailing among the men than in times of peace. No small part of this contrast is due to the complete abolition of scurvy at sea which has, in former years, proved so disastrous to navies, the merchant marine and Arctic exploring expeditions. This one triumph of medical science alone has saved to the world's commerce and navies more than could be easily made comprehensible in figures. The influence of medical science upon allied sciences has been very great within the past two or three decades. Veterinary practice should properly be included under the broader interpretation of the term "Medical Science," and its achievements are producing enormous financial saving to the country through the control of such epidemic diseases among domestic animals as tuberculosis, the foot-and-mouth disease, glanders, hog cholera, and a long list of parasitic diseases like trichinosis, etc., which become a menace to man by attacking animals used for food.

It is not generally appreciated that medical science is producing a revolution in applied botany and agriculture. Arising from the discoveries of Pasteur and those who have made the germ theory practicable in methods of antisepsis and artificial immunity, has come the demonstra-

tion that many plants are dependent upon micro-organisms for their existence, organisms which within the soil associate themselves with the plant rootlets and by fermentation and other processes, actually predigest certain plant foods or prepare them for absorption. The question of sterility of a soil is no longer regarded in an exclusively chemical sense, but one which is directly comparable to sterility as the term is understood in referring to the micro-organisms of bacteriology. The entire physiology of plant life has been recently developed along parallel lines with animal physiology, and the study of the morphology, pathology and prophylaxis of the parasites of vegetation is closely allied with similar studies of animal parasites. In dairy products too, applied antiseptic cleanliness and antifermentative processes are the outgrowth of the recommendations of physicians who have been long teaching the lesson that cleanliness, health and pecuniary profit are not incompatibles but synergists. The various methods of food preservation by refrigeration, canning, drying, salting, preserving in syrups, sugars, vinegars, etc., although they in some instances antedate the science of bacteriology, are all explainable by it, their efficiency has been much improved by it, and to medical science the use of such products must be ultimately deferred to determine their inocuousness, or the dangers which may arise from their overuse or careless preparation. In other words, bacteriology, primarily and fundamentally a department of medical science, has been expanded through knowledge of it gained in medical research, so that it has developed an economic value in agriculture, animal industry and other large industries, which the imagination can with difficulty fully appreciate.

The science of biology had its origin in that of medicine, and for many centuries, physicians were the only biologists. In recent times many eminent biologists began their careers with medical training.

The science of meteorology has attained such independent distinction that it is almost forgotten that it owes its inception in this country to the methods of careful observation and record acquired in the medical service of the army. In 1816 Surgeon Benjamin Waterhouse, U.S.A., made the first series of meteorological reports under an order from the army headquarters. This work, extended by means of apparatus supplied in 1842 by Surgeon-General Lawson, developed into the establishment of a definite weather bureau in 1854, the observations being first made by army surgeons upon the climate and health in camps upon the frontier.

Medical science has opened a new field of industry for women, not alone in the practice of medicine but in the wide occupation of nursing, in which thousands of women find means of honorable and renumerative livelihood. In this country alone the pupils in the nurses' training-schools number more than 11,000, and the graduates 20,000.

Medicine, similar to other comprehensive sciences, has developed a voluminous literature, and a large financial interest is connected with its exclusive production. In 1774 American medical literature was represented by the total publication to that date of one new book and three reprints. To-day the output in medical sciences in this country is an average of one new book for each working day in the year, besides some 300 journals and 5,000 original journal articles per annum. In the libraries of the medical colleges alone (exclusive of the independent libraries like those of this Academy and the Surgeon-General's office), are 158,464 volumes. The mechanical quality of this work as shown in the art of printing and illustration is of a high order of merit which may favorably be compared with similar efforts connected with any other scientific publications.

It is asserted that medical science has prolonged the average age of mankind by several years during the past generation. Desirable as this achievement may be, it is outweighed by the greater gain in the ability to live while we do live, in healthful surroundings free from dread of plagues and with a foreknowledge of the causes of many preventable diseases. Someone said to me recently, "What is the use of doctors inventing new remedies to cure us, when they are always discovering new diseases to attack us?" This occasional attitude of the lay mind is due merely to a somewhat bewildering nomenclature, which, however, to the initiated is merely an effort at greater accuracy and finer differentiation. The patient who, ten years ago, might have grasped the conception of "anemia," would be bewildered beyond measure if he knew that his blood contained "polymorphonuclear neutrophiles" or gave evidence of "oligocythemia" and "poikilocytosis." For him it is still all-sufficient to know that his blood is "out of order." The only sense in which physicians can be said in any respect to have discovered new diseases is in the group of affections described as the "diseases of modern life," including the large variety of occupation neuroses, diseases caused by inhalation of dust and noxious vapors, various forms of acute and chronic poisoning arising from work in certain manufactures, drug habits, and nervous disorders attributable to the excitement and strain of competition under conditions of crowded metropolitan existence. Yet all these disorders medical science has fully met by suggesting methods of prevention and furnishing means of cure. Descriptions of phosphorus poisoning from match manufacture are no longer prominent in medical text-books as they were a generation or more ago. Chronic poisoning from arsenic, lead and mercury from working in the mechanical arts is capable also of complete prevention, as are many other occupation hazards.

Another aspect of medical science can be but barely mentioned in this review, namely the interest which the evolution of medical teaching bears for the students of pedagogy. At the period of the foundation of the first American

School of Medicine in Philadelphia, 138 years ago, of the 3,500 so-called practitioners of medicine in the Colonies, not more than 400 could be fairly described as educated physicians. Since that period we have passed through more than a century of struggling, poorly equipped proprietary schools, until by the earnest efforts of the medical profession itself, we have reached the only sound basis of medical training, the college which is a university department, equipped and administered upon broad university foundations. The student alike of history and of sociology cannot fail to find much of interest in a study of the evolution of organization and cohesion of the medical profession as illustrated by the history of its schools, societies and associations. There is a wonderful progress from the barber's basin to the equipment of a modern antiseptic surgical pavilion. In Noah Webster's elaborate "History of Epidemic Diseases," published in 1800, he expounds their etiology upon a basis of elaborate cosmological theories of earthquakes, comets, volcanic detonations and electrical atmospheric convulsions. What a development is there from such hypotheses to the exposition of medical science as presented at an International Medical Congress of to-day! Scarcely fifty years have passed since the public fought the practice of dissection by riots in New York City, and the States of New York and Massachusetts opposed it by every possible legislative obstacle. Up to 49 years ago a person detected in the act of dissecting a human body in the State of New York was liable to punishment by hard labor in state's prison (Samuel W. Francis; "Biographical Sketches of Distinguished Living New York Physicians").

Thirty years of bacteriology in all of its applications have done more for mankind than all the medical research that has preceded. In an estimate made by Alfred Russell Wallace of 25 discoveries of world-wide importance made during the nineteenth century, one fifth were contributed by medical science, and all but one of these, were made during the last half of the century, viz., anesthesia, the cellular doctrine, the germ theory, antisepsis and phototheraphy. Two more have been greatly influenced by medical science, viz., the theory of the antiquity of man and the doctrine of organic evolution. Yet we have not wholly emerged from the shadow of the Middle Ages, for have we not still among us those who would fain abolish such experiments as have made possible discoveries like those of vaccine, antitoxin, and antihydrophobic inoculations, even as there are those in Persia who would mob physicians seeking to check the spread of cholera.

If medical science produced no other economic benefit than to aid the restriction of the use of patent nostrums and the protection of a confiding public against wholesale quackery, it would be doing a noble work. Unfortunately success in this direction is far from complete, but without such restraining influence it is gruesome to contemplate the evil to which unlimited malpractices would attain.

I have thus far outlined the broader aspects of medical science as they may be summarized among the great factors in the world's progress of the day. I have purposely emphasized the economic rather than the humanitarian phase of this influence, for the former is usually of greater weight in a community in securing sanitary and hygienic reforms, in the enforcement of which, in the present state of public enlightenment legislation is often necessary. The humanitarian and medical achievements of the world are so interwoven and interdependent that they are bound to progress together. The skilful care of the sick is a foundation principle of civilization, but the care of the well, in order to prevent disease, forestall epidemics and avert physical suffering, is in many of its aspects a more modern thesis and one much more difficult for the community to grasp intelligently. Only within a very few years have those of large means begun to turn their attention to the importance of establishing and maintaining institutions of medical training, and especially of scientific medical research, as an opportunity for benefiting the community upon a truly magnificent scale; instance the Rockefeller Institute in New York City, as a foundation for pathological research, the Laboratory of Hygiene in Philadelphia, the Caroline Brewer Croft Fund for promoting the investigation of cancer, at the Harvard Medical School, etc. Of general hospitals we have enough for present needs, and in special hospitals nearly all separate classes of disease (excepting perhaps tuberculosis), are amply provided for. Of colleges for undergraduate training we have also enough; indeed it may not be deemed discourteous to say more than enough, but of facilities for purely scientific research for advancing barriers against the disease enemies of mankind, far too few. A single research like that of the lamented Major Walter Reid, in establishing the etiology and prevention of one of the most dreaded scourges of the human race, yellow fever, not alone ranks among the brilliant humanitarian achievements of history, but it cannot fail to impress the minds of practical men of wealth by its economic value as well. Such researches, like those of Pasteur and of Koch, who made it possible through their work of substituting for the spurious theory of spontaneous generation, the true doctrine of the specific nature of bacterial disease—such research has always proved of no direct pecuniary reward to the scientist. Its incalculable economic value, however, must surely, in due time, demonstrate to the philanthropist, that to invest in the endowment of medical research, is to realize the highest rate of interest for the good of mankind. In an address, delivered by Theodore Roosevelt while Governor of New York, at the inauguration exercises of the Cornell University Medical College, he said: "The work which is on the whole best worth doing for any great people is work which from its very nature cannot pay for itself. The great mass of the body politic has got to understand this, or there will be a failure to provide

opportunities for this non-renumerative work, the work which does not and cannot bring quick and profitable pecuniary returns to the doer of it."

The practical argument of this review is its application to the future of the Academy of Medicine. In surveying the economic value of medical science, one cannot fail to be impressed with its wide-reaching scope, as well as with its constantly growing influence. There is so much more in the science of medicine to-day, and all its correlated social problems, than was dreamed of in the limited pill-and-potion days of a hundred or even half a hundred years ago.

The record of the Academy in promoting the broader aims of this science is most commendable, but might we not in future accomplish much more? It should not be forgotten that it was the Academy of Medicine which by its influence secured the original organization of the Health Department of this city. It took active part in promoting the formation of the Sanitary Commission of the Civil War. It has through a special committee, repeatedly urged upon the Government the importance of establishing a National Board of Health. It has been instrumental in securing the reconstruction of the Quarantine Hospital and in securing free public baths for the poor, in preserving the city water supply upon sanitary principles, and has undertaken and accomplished many other good works of broad public interest, too numerous to further enumerate at the present time.

It might very appropriately fall within the scope of work of the Academy to include among its many sections one of Medical Economics, or Medical Sociology, with the special function of studying the broader aspects of medical science as affecting great public interests, studying them with the view to formulate conclusions and offer recommendations for action. Moreover, one or two of the general meetings of the Academy might systematically be devoted each winter to the open discussion of such topics. The public should learn more and more to look to the Academy as a Supreme Court in matters hygienic and sanitary. It would seem that the day has passed when such suggestions can be met by the plea that it is not the legitimate function of physicians to "meddle in politics," or to attempt to secure legislation for needed sanitary reforms and that our professional standards will be lowered by public campaign against flagrant abuses of the public health. The true disciple of Æsculapius is so imbued with the doctrine of the enormity of self-advertisement that he often shrinks from manifest public duty. While this doctrine is still earnestly applicable to the individual, the collective action of a representative body of physicians, such as compose the membership of this Academy, cannot be misconstrued. The whole subject of medical science is too broad to longer admit of narrow-minded criticism of the advocacy of sanitary reforms and betterments which may be instigated by the deliberations and through the influence of this institution. The Academy, which can refer with so much pride to its record in the past, need not fear to lower its dignity or lessen its purely scientific prestige by keeping pace with modern requirements and acting promptly and decisively as the sponsor of the public health. In closing, I cannot more appropriately emphasize this view than by quoting from the address delivered at the semi-centennial celebration of the Academy by that distinguished statesman who then honored us with his presence—Grover Cleveland: "We cannot keep out of mind the suspicion that if your professional work in exposing evils were more thoroughly supplemented by labor in the field of citizenship, these evils would be more speedily corrected. If laws are needed to abolish abuses which your professional investigations have unearthed, your fraternity should not be strangers to the agencies which make the laws. If members of your profession were oftener found in our national and State legislative assemblies ready to advocate the reform measures you have demonstrated to be necessary, and to defend your brotherhood against flippant and sneering charges of impracticability, the prospect of your bestowal upon your fellow-men of the ripened results of your professional labor would be brighter and nearer."

ETIOLOGY OF RACHITIS.

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The gross pathological anatomy of rachitis is well and definitely known; and it would add unduly to the length of this paper, were I to speak of it in detail. The lesions in the skeleton are the most constant and characteristic, and these must form the basis for any attempt to explain the nature and cause of this disease. These are therefore very briefly described:

The characteristic lesions appear at the growing ends of the long bones, causing a disturbance of the inter-cartilaginous ossification. These changes may be enumerated as follows: (1) defective calcification of the proliferating cartilage; (2) defective calcification of the new formed ostoid tissue; (3) increased vascularity; (4) hyperplasia of the proliferating cartilage cells. The vascular and hyperplastic processes are not, as has been shown by Pommer[1] directly connected with the pathogenesis; but are due to external and purely mechanical influences. The essential part of the pathological process is the defective calcification; for aside from the changes just noted the bone is normal. The ostoid tissue formed is in no way different from that formed in normal bones; the periosteum aside from defective calcification and changes due to mechanical influences, shows no change; the medulla of the bone is not altered; and contrary to the opinion of some authors the resorptive processes are not increased.

Pommer[2] has proved that the defective calcification is due to a dissolution of the previously

deposited lime salts in such rare instances that we may disregard it entirely; we must therefore conclude that, primarily, the bone lesions of rechitis are defective calcification of the cartilage and newly formed bone.

Up to the present time, no local condition has been found which can be considered the cause of the defective calcification. On the contrary, as I have pointed out, the local conditions in the bones are either secondary to it or are due to external physiological influences. Such being the case, we are perforce compelled to seek an explanation of the anomaly outside of the skeleton. And as the skeleton as a whole is uniformly and constantly affected in the same way, we must assume that this anomaly is of a general or constitutional character. This assumption is borne out by the other lesions and symptoms of rachitis: the enlargement of the spleen, the hydrocephalus, the nervous phenomena, the intestinal disturbance, the bronchial catarrh, etc., all point to a constitutional vice as the cause of the anomaly. Hence the etiology of rachitis must be sought in a condition or series of conditions, which are inimical to the calcification of the growing bones.

This being granted, the subject can be studied from two standpoints: we can assume that a constitutional anomaly is the cause of the inhibition of the calcium deposition, and attempt to explain the nature and cause of rachitis by investigating the cause and nature of this anomaly; or we can assume that a deficiency in the amount of the calcium within the organism is instrumental in producing not alone the faulty calcification but also the constitutional anomaly.

Ever since the discovery that rachitic bones are deficient in inorganic salts, the latter assumption has been the basis, or at least the starting point of the majority of the investigations on the etiology of rachitis. The deficiency of calcium within the organism has most frequently been attributed to one of two conditions; either the calcium of the food is deficient; or, that not being the case, the absorption of the calcium is defective. Experimentally, it has been definitely proved (E. Voit,[3] Roloff[4]) that total absence of calcium in the food, when the food is otherwise suitable, and sufficient in quantity, will induce the true rachitic bone lesions in growing animals. But such a combination of circumstances as total absence of calcium in a food otherwise suitable, does not occur naturally; and clinically rachitis cannot be said to arise from such a condition of affairs. The calcium in the human milk, the milk being otherwise normal, is always ample for the needs of the infant metabolism; cow's milk and all other "infant" foods, contain either sufficient or even an excess of this substance.

Consequently, if we still adhere to the theory of deficient calcium, we must assume that the absorption is defective. To prove this a vast number of experiments and researches have been attempted, and this theory has, I believe, been accepted by the greater number of medical men. Uffelmann[5] and Escherich[6] examined the feces of artificially fed children and found that the calcium was always greater in these than in the feces of breast-fed children, and they concluded from this that the calcium assimilation is not as perfect in the former as in the latter. That the absorption of calcium is defective in rachitic children seems, moreover, to be borne out by the investigations of Seeman,[7] who found that the amount of calcium in the urine of rachitic children is diminished. Seeman attributes the faulty assimilation to insufficiency of the HCl in the gastric juice. To account for this he adduces Bunge's sodium chloride theory, which supposes an excess of K in the food, causing an NaCl deficiency and consequently a deficiency of HCl secretion. Zander[8] believed that he had proved this assumption to be correct by demonstrating that in the milk of a number of mothers nursing rachitic infants, the relation of the K to Na was in favor of the K. In a very elaborate monograph on the etiology of rachitis Zweifel[9] has gone over this ground very fully, and he believes that he has placed the theory of deficient HCl and consequent faulty assimilation of calcium upon a firm basis.

By withdrawing the NaCl from the food (vegetable diet) of nursing women he hoped to induce a NaCl deficiency, which, he argued, would have a twofold effect. In the first place it would diminish the amount of calcium assimilated by the mother, and thus diminish the amount in her milk; in the second place it would diminish or eliminate entirely the supply of sodium chloride to the child, which in turn would inhibit its power of absorbing calcium. Thus he hoped to induce rachitis. His results, however, were not favorable; and he found that the reason for this was that no matter how strictly he eliminated the NaCl, the maternal organism was still able to extract a sufficient amount from the food to keep the quantity in the milk within a certain limit. Nevertheless he considers Zander's and Seeman's observations conclusive; and concludes that in nursing infants rachitis is caused by a deficiency in the HCl and a consequent malassimilation of calcium. That such a lack of NaCl in the food of nursing mothers can occur under other than experimental conditions he considers proved by the fact, that in Saxony, where it is a national peculiarity to take black bread without salt, rachitis is unusually frequent and of an unusually severe character.

However, as these observations are capable of explaining the pathogenesis of rachitis in nursing infants only, if at all, he proceeded to investigate the relation of these facts to artificially fed infants. In order to discover the fate of the calcium after its ingestion, he performed a very extensive series of test tube experiments in the digestion of cow's milk. As a result, he found that the dissolved calcium salts of the cow's milk are, to a very large extent, changed into insoluble combinations when the milk is coagulated by the milk-curdling ferment. When the milk is boiled, the amount which becomes insoluble is even

greater, so that the quantity of soluble calcium which remains after coagulation is below that contained in an equal quantity of human milk. The insoluble calcium salts in the milk curd can be redissolved in only one way, that is, by the presence of an acid—in the case of the infant's stomach, HCl. It depends, therefore, upon the quantity of HCl in the stomach whether or no, a sufficient quantity of calcium is made soluble and absorbed. If the HCl is deficient a calcium deficiency occurs in spite of the excess of calcium in the cow's milk. From this he concludes that, whenever, either as a result of the action of Bunge's law, or as the result of a primary deficiency of NaCl, a deficiency of HCl occurs rachitis will be induced.

Zweifel's monograph is very interesting and embodies a vast amount of time and work; moreever it represents the highest development of the theory of deficient absorption of calcium as the cause of rachitis. However, in spite of the accurate and scientific manner in which his individual experiments were conducted, this hypothesis must inevitably fall to the ground. Granting that the experiments themselves and the conclusions to be drawn from them are perfectly scientific and accurate; as a complete entirety the theory is false; necessarily false, because the premises upon which it is founded are fallacies.

Zweifel assumes, upon what ground he does not state, that the HCl secretion is absent or very deficient in early infancy, and continues so for some time after, though there is abundant evidence to the contrary. He also assumes that besides the natural deficiency, a further deficiency is induced by lack of NaCl within the infant's organism, and adduces Bunge's[10] law to prove this.

As far as the latter assumption is concerned, it takes very little insight to appreciate that Bunge's law has only a very limited application in this respect. Excess of K, in the food no doubt produced a NaCl loss within the organism, by the combination of the K with the Cl and the subsequent excretion of the KCl thus formed; but this replacement of the Na by the K only continues so long as the NaCl within the body is in excess of what is absolutely necessary to the organism (Cv. Voit).[11] Otherwise the organism tenaciously holds its NaCl; and unless very unusual and very unnatural conditions prevail, there is always a sufficient quantity retained to prevent NaCl starvation. Zweifel's own experiments prove this; for although he forced nursing mothers to consume vegetable food, poor in NaCl, and eliminated all other sources of NaCl, he was unable to reduce the NaCl in the milk of the mother, or that in the urine of the child beyond a certain point; that is he was able to induce NaCl deficiency in neither mother nor infant.

However, even were it true, which it is not, that by the entire elimination of NaCl, except that naturally contained in the food, NaCl starvation could be induced, this would not prove that NaCl deficiency is the cause of rachitis. Such a peculiarity as eating food without the addition of salt does not exist, even among the most poor and destitute. That the black bread of Saxony is baked without salt does not indicate a general tendency in this direction; Zweifel himself considers this a local peculiarity. Yet rachitis, as all medical men can testify, occurs in nursing infants outside of Saxony, and in this country where we are particularly partial to salt, it certainly is not rare.

But even were we to assume that a NaCl deficiency could occur from natural causes this would not constitute proof that such a deficiency is the cause of rachitis. It would first be necessary to prove that the calcium is absorbed in the stomach; and could only be absorbed if it were dissolved by the HCl contained in the gastric juice. But this has never been proved; on the contrary such an assumption is opposed by a number of physiological facts. In the first place only a very small amount of calcium is taken in, and is necessary for the organism, no matter how much is present in the food ingested; secondly all dissolved calcium salts if absorbed are precipitated by the alkaline body fluids. These and other physiological considerations lead us to conclude that only a very small amount of calcium, which is in combination with organic substances, thereby retaining its solubility, is assimilated.[12]

These theoretical considerations are, I think, more than sufficient to show that the deficient NaCl hypothesis is untenable. However, leaving them aside, I believe the experiments and observations of which I shall give only a summary here, make it certain that, while the bone lesions of rachitis may be induced by the elimination of the calcium from the food, such an absence of calcium from the food is not the cause of clinical rachitis; that in fact the lack of calcium cannot be held responsible for its causation at all.

According to those who hold the theory elucidated above, rachitis is due to a deficiency of calcium within the organism; this deficiency, they assume arises, not because of a lack of calcium in the food, but because the calcium therein contained is not absorbed. Now Rüdel's[13] experiments prove conclusively that even in the severest forms of rhachitis, soluble calcium is absorbed in the same proportion as in health; so that as Zweifel contends the root of the trouble must lie in the insolubility of the calcium salts contained in the food. Hence if this contention is to hold, rachitis cannot supervene so long as the organism has a sufficient amount of calcium at its disposal.

I have been fortunate enough to be enabled to put this contention to such a test. I have had under my observation three infants of about the same age (12, 12½ and 13 weeks respectively), whose mothers were either compelled or for other reasons decided to take their infants from the breast. Two of these infants were perfectly normal, the other had symptoms of insufficient nourishment. These three infants were then fed upon condensed milk, a teaspoonful of milk to

twelve of water, which later was reduced to ten teaspoonfuls. Besides this food, there were given soluble calcium phosphate, the monobasic calcium phosphate and sodium chloride; this was given in the form of a mixture.

R Monobas. calc. phosphate
Nat. chloride, aa..... 3.0 (gr. 45)
Syr. simplicis
Aquæ, aa..... 30.0 (℥)

to be administered three times a day one-half hour before feeding, that is, upon an empty stomach. Thus these infants were receiving an excess of soluble calcium and in addition, sodium chloride, to increase the hydrochloric acid in the gastric juice, so that (if Zweifel's view is correct) an additional amount became soluble from the calcium contained in the food. Now mark the result.

These infants were kept under observation for about one and a half years. At first all three did fairly well, they gained in weight, took the food readily, had no signs of gastro-intestinal disturbance, and apparently were perfectly comfortable. During the middle of the fifth month, however, two of the children began to show signs of illness. They cried more than usual, showed a disinclination to being handled, and were constipated. By the middle of the sixth month, both children had begun to sweat and bore the head into the pillow, and by the middle of the seventh month both had pronounced signs of rachitis, *i.e.*, enlarged epiphyses, prominent abdomen, bearing of the ribs, suggestion of Harrison's groove, etc. It seems remarkable, but nevertheless true that the third infant, the one who at the beginning showed signs of insufficient nourishment, was at the time the condensed milk was discontinued, perfectly well, showing absolutely no signs of rachitis.

Early in the eighth month, the condensed milk, and at the same time, the administration of monocalcic phosphate and sodium chloride were discontinued and the children were placed upon a diet of cow's milk in the proportion of three-quarters milk to one-quarter water. This mixture received no other addition, was sterilized (?) by simply allowing it to boil up once over the free fire—allowed to cool and placed upon ice until required for use when the quantity to be used was warmed. Upon this diet, which was soon augmented by eggs and cereals, the rachitic infants immediately began to improve; they gained in weight, cried less and less and the symptoms and signs of rachitis gradually disappeared.

I think there can be no doubt at all that these observations are conclusive. Here we have two infants, with an abundance of soluble calcium at their disposal; not alone at their disposal but ingested in such a manner as to render it impossible for non-absorption to take place, if absorption ever takes place at all. Nevertheless these infants became rachitic. And what shows still more clearly how small a part the soluble calcium ingested with the food plays in the production of rachitis, the cessation of all the extra ingestion had absolutely no influence in retarding the recovery from rachitis, so soon as the infants were given a more suitable food. More conclusive evidence against the theory that the calcium itself or the NaCl indirectly, are concerned in the production of rachitis could not be desired.

Nevertheless, for fear that these observations may be considered too few to be of value, I have adduced further evidence to support this contention. If, again, we assume that the calcium deficiency is the cause of rachitis, we must conclude that, other things being equal, the rachitis must disappear as soon as the calcium deficiency is compensated. With a view of testing this conclusion, I have tabulated the results of various forms of treatment in rachitis, including that of the administration of soluble calcium phosphate.

I have records of 803 cases, of which 203 were seen only once or twice, and are therefore not available for our purpose; 123 are not considered here, for reasons which I shall speak of in another paper. Of the remainder 150 were seen prior to 1901 and were treated according to Kassowitz with phosphorus: 50 (seen during the winter and over six months old,) were given cod-liver oil; 150 were given monobasic calcium phosphate, in the manner described above; and 127 received no medication whatsoever.

All the children were, so far as is possible in polyclinical practice, placed upon a uniform diet. A number of the mothers, the most ignorant and careless, probably did not follow instructions, but the majority of them were, I believe, conscientious and any lack of favorable results in the treatment must be ascribed to other causes. Infants over three months (there were none younger) were given three-quarters milk and one-quarter water, to which was added sugar of milk in the majority of cases, and treated in the manner above described. If three-quarters milk caused gastric disturbance the quantity was reduced for a time, but soon gradually increased again. The period of observation always exceeded one month.

It takes only a cursory glance at the tables to convince anyone that there is a remarkable uniformity in the results of treatment. The percentage of improvements varies only slightly with the various forms, being slightly higher without medication, and lowest with the administration of phosphorus. That the calcium phosphate has no greater curative influence than other therapeutic measures is evident from the fact that improvement was no more frequent when it was administered than when nothing at all was given.

These practical observations, therefore, bear out the theoretical consideration. The latter lead us to believe that the organism is not dependent upon the soluble calcium, in fact, the physiological consideration shows that it receives it almost entirely in the form of an organic compound with albumin. However, even should the absorption of the calcium be dependent upon its solubility, there is no reason to believe that the infant is un-

able to secrete sufficient HCl to bring it into solution. The former, (*i.e.*, the practical observations), show conclusively that infants can, and do become rachitic in spite of an abundant supply of absorbable calcium, and that children with rachitis are not cured any more rapidly when an excess of absorbable calcium and sodium chloride is supplied them, than when these are omitted.

We must, for these reasons, conclude that a deficiency in the quantity or a faulty absorption of the calcium ingested is not the cause of rachitis.

Such being the case, and our only clue to the etiology of rachitis being the faulty depo-

TREATED WITH MONOCALCIC PHOSPHATES.

Age	No. Cases	Improved	Not Improved	
3 to 4 mos.	4	4	0	Children whose previous food was condensed milk.
4 to 6 mos.	6	5	1	
3 to 4 mos.	10	10		Children whose previous food was cow's milk or artificialfood.
4 to 6 mos.	52	45	7	
6 to 8 mos.	40	33	7	
Over 8 mos.	36	25	11	
Over 1 yr.	2	2		Children whose previous food was human milk.
	150	124	26	

Per cent. not improved, 18.8.

TREATED WITH COD LIVER OIL.

Age	No. Cases	Improved	Not Improved	
4	1	1		Children whose previous food was condensed milk.
7	1	1		
3 to 4 mos.	12	11	1	Children whose previous food was cow's milk.
4 to 6 mos.	10	7	3	
6 to 8 mos.	5	4	1	
Over 8 mos.	8	6	2	
3 to 4 mos.	3	3		Children whose previous food was proprietary food.
4 to 6 mos.	5	4	1	
Over 6 mos.	5	4	1	
	50	41	9	

Per cent. not improved, 18.

CHILDREN TREATED WITH PHOSPHORUS.

Age	No. Cases	Improved	Not Improved	
3 to 4 mos.	20	18	2	Children whose previous diet was cow's milk or proprietary food.
4 to 6 mos. or more	60	47	13	
6 to 8 mos.	44	34	10	
3 to 4 mos.	2	2		
4 to 6 mos.	8	7	1	Children whose previous diet was condensed milk.
6 to 8 mos.	11	9	2	
Over 9 mos.	5	4	1	
	150	121	29	

Per cent. not improved, 19.

CHILDREN WITHOUT MEDICATION.

Age	No. Cases	Improved	Not Improved	
3 to 4 mos.	2	2		Children whose previous diet was condensed milk.
4 to 6 mos.	1	1		
6 to 8 mos.	4	3	1	
3 to 4 mos.	19	17	2	Children whose previous diet was cow's milk or proprietary food.
4 to 6 mos.	30	25	5	
6 to 8 mos.	32	25	7	
8 to 12 mos.	34	29	5	
Over 12 mos.	1	0	1	
Over 12 mos.	4	3	1	Children who were breast-fed.
	127	105	22	

Per cent. not improved, 17.3.

sition of the lime salts in the bones, the assumption (mentioned first at the beginning of our discussion) that an anomaly of the metabolism, which besides causing other abnormalities, is inimical to the normal calcification of the bones, must form the starting point of our search for the cause of rachitis.

How such an anomaly is induced is difficult of explanation. Moreover, it will remain difficult or impossible to explain, until we have a better understanding of the nature of the anomaly than we have at present, *i.e.*, until we have a more definite knowledge of the pathogenesis of rachitis. In this respect we are, as Vierordt[14] aptly remarks, still completely in the dark.

My original intention was to take up this portion of the subject this evening. I flatter myself that some of my observations are likely to throw some light upon this mystery. However, the time alloted does not permit of this and I must therefore reserve the exposition of this part of the subject for a future paper.

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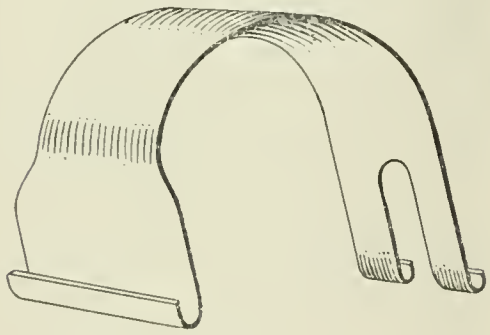
Treatment of Hemorrhoids.—It is somewhat singular that a method can be described as "new" which has been in vogue for a considerable time. JOHN LANDSTROM (Zentralbl. f. Chir., Nov. 21, 1903) describes the use of the angiotribe in the treatment of this condition, which he says he introduced in September, 1902. He states that the operation is much more desirable than either the cautery or the ligature—first, because of its certainty, and second, because of the speed with which it can be accomplished.

SPLINT FOR TREATMENT OF FRACTURE OF THE INFERIOR MAXILLA.

BY CLINTON B. KNAPP, M.D.,
OF NEW YORK.

During my service as interne at the French Hospital, we had two cases of fracture of the lower jaw which gave us considerable trouble to keep in proper position. The anterior fragment being pulled downward and backward by means of the muscles attached to the hyoid bone. The posterior fragment being displaced in the opposite direction due to the pterygoid, masseter and temporal muscles. Many attempts were made to keep the ends approximated by means of various bandages, on the principle of the old four-tailed bandages; these pull backward as well as upward, whereas traction upward and forward was needed. To accomplish this I took a strip of tin, turned up one end to form a gutter, carried the strip from the forehead over the vertex and well under the occipital protuberance. This was made secure by a plaster-of-Paris bandage.

Fig. 1.



Strips of adhesive plaster from the under surface of the chin to the gutter of the splint gave the desired upward and forward traction, thus getting apposition of the fragments and perfect position of the jaw. Adhesive plaster has the advantage of not slipping. The posterior part of the splint passes down on either side of the occipital protuberance so that the patient has no discomfort from pressure.

Case I.—T. W. N., thirty-five years old, entered the French hospital Feb. 21, 1903, during the service of Dr. E. H. Pool.

The fracture, the line of which was from a point behind the teeth on the right side, downward and backward, was received in a fight ten days before coming to the hospital. Previous to his entering a number of attempts had been made to set the fracture, among them an interdental splint had been tried, without success. After entrance various bandages were applied, also with no success. The tin splint held the fragments in perfect apposition with no further trouble. Removed at the end of three weeks, with good result.

Case II.—S. H., twenty years old, entered the hospital Oct. 6, 1903, during the service of Dr. Charles H. Peck. Fracture on right side through the lower part of ramus, the result of a fight. Splint removed at the end of three weeks. Result good.

Fig. 2.

Dr. Charles H. Peck presented the last case for me, together with the splint, at the Surgical Society, on Nov. 11, 1903.

With this method of treatment the patient has free movement of the head. The splint is very light, easily made and easily applied.

THRUSH.

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Though most frequently a trifling affection that is readily cured with the aid of some simple remedy it may nevertheless at times become a very serious trouble, so serious indeed as to threaten, aye, even to take the life of the child.

Thrush is a disease of filth, of uncleanliness on the part of the mother or nurse or whoever may have charge of the infant; uncleanliness of the breasts, uncleanliness of the nipple and of the nursing bottle, uncleanliness as regards the general hygiene of the child. One of the worst cases that I met with was in a fairly well-to-do family where the grandmother, a foreign woman accustomed to the res angusti domi and the squalor and filth of the paupers of Northern Europe, took charge of the new-born babe. She abhorred water and thought the infant must be of the same mind and instead of washing it smeared it over with butter. She put her fingers into the infant's mouth without any previous cleansing, regardless of what she might have been doing before. It was impossible to change her methods, she had had children, had reared several and certainly knew what to do. The small pieces of muslin

which she prepared wherewith to cleanse the child's mouth she cut from a piece that had been rolling about the goods' table for some time, and kept them, so as to have them handy, under the mattress of the infant's cradle. The breasts of the mother were also not exposed to the dangers of a cleansing with water, but were likewise smeared with butter (taken from that upon the table for common use), as the daughter, like the mother, thought this the safer practice. As a natural consequence thrush supervened, became more and more intense and after a period of some weeks carried off the babe by inanition.

The disease once present, it is again the carelessness of mother or nurse that tends to its spreading and therefore its aggravation. The parasite, the *Oidium albicans*, is readily propagated, and a small particle thereof transplanted elsewhere and given an opportunity to become adherent will soon produce an abundant crop in the new locality. The cleansing of the infant's mouth is usually done with the finger wrapped with a piece of muslin or linen, and in the treatment of thrush the topical applications are in most instances made in the same manner. Usually the process is immediately repeated, two applications, one immediately after the other, being thus made. In the performance of this act more or less of the parasite is detached and adheres to the cloth and not infrequently the epithelial covering at one or the other points is abraided. Now, if it be done by an ignorant and slovenly person, no particular care is had as to the cleanliness of the cloth with which the finger is wrapped and after the first application, the soiled cloth instead of being replaced by another —by a clean one, is allowed to remain, dipped into the mixture and the application repeated. The detached particles of the parasite are thus reintroduced into the mouth. Of these some may become replaced while others, falling loose into the mouth, are, as the infant does not spit out, carried backward to the furthermost portions of the dorsum of the tongue, to the fauces, to the pharynx and even to the esophagus.

That uncleanliness of the mother or nurse, both as regards her own person and that of the infant, is the factor in the production of this ailment cannot be questioned to-day and is amply demonstrated by the following facts:

1. It is now a recognized fact that the disease may develop in an infant otherwise healthy and with an oral cavity in a normal state (and not, as was formerly taught, only in infants ailing in some way or other and with the mouth more or less inflamed).

2. Since the better knowledge as regards the care of infants has become more widespread among the laity the disease has become of rather rare occurrence in this country.

3. Even in the many grave cases of gastro-intestinal disease, which I met with in a long series of years, which is particularly frequent in the summer and which is supposed to favor the development of thrush, careful attention to hygienic requirements, wherever faithfully given, prevented its development.

4. The parasite is always introduced from without.

The infant thus afflicted will not or cannot nurse. Whether this is due to an irritated condition of the tongue and other parts of the buccal cavity following upon the invasion and making suction painful or whether it is due merely to the presence of the parasite which either takes away the appetite or develops a bad taste in the mouth and therefore a dislike for the food, is a question that has not been determined. To me it would seem, judging from the cases here reported and a few others, that it must be due to the presence of the parasite for in these cases very shortly after the mouth was freed therefrom the infants began to nurse again and with a right good will.

As a consequence of this refusal of food inanition soon sets in and a rapid deterioration of vitality ensues.

Of course the further down the parasite spreads the more serious becomes the case and when it has reached the esophagus the condition may be said to be hopeless, the infant starves to death.

The treatment of the lighter forms of thrush, where the parasite has as yet spread but little and its threads have not yet penetrated the epithelial layer, is not a very difficult matter. In common use with practitioners and laity is borax in some form either in solution or as a paste made with honey, as recommended by Trousseau[1] and applied with the finger as above described. Some indeed, upon the ground that the parasite thrives only in an acid medium, content themselves with the application of Vichy water or of solutions of Soda bicarbonate. Early in my experience as a medical practitioner, seeing the evils that attended the applications made with the finger, I preferred to use the hyposulphite of soda which was supposed to possess marked antiseptic properties.

℞ Soda Hyposulph..... ℈i
Ag. Destill.....ʒv
Glycerin..... ..ʒiii
M. Sig.: One teaspoonful every two hours

administered internally and applied topically with a large camel's hair pencil. In the ordinary cases and even in some where the parasite had already attained considerable extent this agent gave me excellent results, better than those usually obtained with the borax.

However, it is not these lighter cases that are the source of worry and trouble. It is where the parasite has spread largely, where its threads have sunk down deeply into the tissues and feeding becomes almost impossible that the question arises what can we do to save the humunculus.

Various of the more potent remedial agents have been recommended: Trousseau[2] advised nitrate of silver and this agent seems to be the favored one as yet with many pediatrists; while J. Lewis Smith[3] prefers the use of

℞ Zinc sulphate.....grs. ii to iv
Aq. Rosæ .....ʒii

A weak solution of mercury bichloride in alcohol, to be applied with the finger as described. It is said that one or two applications are effective. A dangerous remedy, except in the hands of the most expert, and even then its success has not been such as to commend it to physicians in general.

Application of the perchloride of iron once a day or every second day (Comby[4]).

A solution of potassium permanganate, 1 in 25 topically and the administration (internally) of a solution of resorcin 1 in 100 three to four teaspoonfuls in twenty-four hours (Baginsky[5]).

None of these agents have that certainty of effect and that rapidity of action needed in these severe cases where every moment lost is of grave detriment to the starving child confronting us.

Lately Vladimiroff[6] recommended that the parasite be forcibly removed by means of the dry swab and the forceps and the parts then brushed with a two per cent. solution of silver nitrate. He admits that the procedure is a rather brutal one but fully justified by the exigencies of the case.

In the course of practice I came across such cases now and then and after several failures with various methods of treatment it occurred to me that the remedy which was then known to us as the best antiseptic, namely iodine, and which with many of us, as with me, was the standard application in the various anginas, was the remedy par excellence to apply. Fortune favored me and soon gave me the opportunity for a trial. I made it, and all expectations were realized. One thorough application and the parasite was removed.

Case I.—March, 1881. I was called to see Baby K. Its mother a woman in very modest circumstances, was delivered of it six days ago by a midwife and it then appeared a healthy and well-developed infant. There was nothing extraordinary about the confinement, in fact, as I was told by a neighbor woman experienced in these matters, it was rather an easy one, and although subsequently things ran on smoothly, the lochia normal, the breasts filling with milk, though not abundantly, no fever at any time, the mother seemed to fall into a state of listlessness, of apathy and had no care for the infant or anything else. The care of the baby, outside of the visits made by the midwife once in the morning, devolved upon a little girl eight years old (the father was away in the country peddling).

At the outset the baby had nursed well but later on it seemed to have some difficulty in doing so. In the last twenty-four hours, when put to the breast it would take hold of the nipple, hold it for a little while, making but feeble effort at suction, and then let go.

Examining the infant's mouth I found it affected with thrush. Otherwise everything seemed normal. I prescribed the borax and honey preparation as perhaps the easiest of application under the circumstances and directed the mother to apply it three times a day giving her detailed instructions therefor.

To make a long story short, the mother paid no attention to the baby despite all my scoldings, remaining all the time in bed in the same apathetic state; the little girl did the best she could and when I called for the third time, on the fourteenth day (of its birth) I found the whole tongue back to its root covered with the parasite, and small patches on the gums and on either cheek. The infant had not nursed at all for the last twenty-four hours and hardly at all the days preceding that. It thus got but little nutriment outside of a little sweetened fennel (seed) tea which the little girl gave it with a teaspoon several times a day. It was very weak, cried in a low wailing tone and showed a considerable loss of flesh. It was evident to me that more effective treatment was required if the baby's life was to be saved. I sent to the drug store and had put up the following:

℞ Tinct. Iod. ..... ℥ss
Glycerin. ..... ℥iiiss

As soon as it was brought I applied it with a large camel's hair pencil to the tongue, gum and cheeks. The effect was remarkable; the parasite seemed to melt away as it were and when I was through not a vestige remained.

I now pulled the mother out of the bed (literally) and made her get into her clothes. I directed her to sponge herself, particularly her breasts, very thoroughly with soap and water, rubbing dry with a clean towel. To do this every morning and to use a fresh towel for drying each time. This was as much as could be expected. After an hour or so she was to put the child to the breast and to do this regularly at intervals of two hours, etc.

I called the next day, found no trace of thrush and was told that the infant had nursed well throughout the day and twice in the night. To make sure of this I had it put to the breast in my presence and was thus convinced that it nursed very well, with evident relish as if it realized that it had to make up for lost time. The mother also seemed to have recovered all her former energy.

Case II.—October, 1883. I was called to see Baby M., three weeks old. Its mother, now a widow, is compelled to go to work daily for the support of her family and with the exception of morning and night nursings the baby is fed with a bottle, condensed milk being its food. Its care throughout the day devolved upon a twelve-year-old girl.

Up to the fifteenth day the baby nursed and took its bottle with much vigor and throve nicely. On that day the little nurse noted that her baby brother did not seem as eager for the bottle as he had always been previously. However, he nursed the breast well. A little later it nursed but little, taking hold of the nipple, making a few suctions and then letting it go again. In the last two days it would not take the bottle and did not nurse

the breasts, and all the nourishment it has received in that time has been what the mother squeezed out of her breasts into its mouth.

Examination of the mouth shows extensive thrush all over the tongue to its root with small patches upon the fauces and upon the cheeks.

Treatment.—The iodine mixture was applied thoroughly wherever the parasite was found and after the brush was withdrawn the parts looked red, slightly irritated, but clean.

Minute directions were given the mother as to the necessity for cleanliness of the breasts and of the bottle and how to care for the latter.

I saw the baby some three or four days later; no further evidence of the disease. The child again took the bottle very well and nursed the breasts with all its pristine vigor.

I have seen other cases since, treated them in the same way and all with the same happy result.

At the outset I was inclined to ascribe all the virtues to the tincture of iodine, regarding the glycerin as a convenient vehicle only, but since then I have discovered that the glycerin is also a very important factor, as it certainly loosens up the mycelium from the tissues to which it is attached and makes its removal an easy matter. Without exaggeration it can be said that this plan of treatment surpasses any that has hitherto been recommended in the readiness of application, the harmlessness of the remedial agent employed and the marvelous rapidity of its action—truly *cito, tuto et jucundo.*

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THE INTERNAL TREATMENT OF DISEASES OF THE BLADDER.

BY LOUIS STERN, M.D.,
OF NEW YORK.

While in cystitis local measures have to a great extent superseded the internal treatment, the latter is not as unimportant as some authors are inclined to think. In the old materia medica the so-called urogenital remedies occupied a prominent place. They were employed indiscriminately in most genito-urinary diseases, and at that time regarded as almost indispensable. Nowadays, however, their use finds but limited application, and in much smaller doses than those in which they were formerly prescribed.

The tendency at the present time is to regard affections of the bladder and urethra, and the prostatic troubles with which they are so often associated, as chiefly of bacterial origin. This has had a corresponding influence upon the internal treatment. Until the introduction of hexamethylene-tetramin, which is known commercially as urotropin, formin, aminoform, cystogen, etc., there was no drug which could be regarded as an internal antiseptic in the true sense of the word. In fact, the only drugs of this kind which have been administered are benzoic acid, salol, and boric and salicylic acids, and these are not sufficiently powerful to produce any marked destructive action upon microorganisms in the urinary tract. On the other hand, hexamethylene-tetramin has the property of setting free formaldehyde during its process of elimination through the urine, and thus bringing this powerful antiseptic directly to bear upon the source of the infection. It therefore quickly found its way into genito-urinary therapy, and for a time seemed to leave nothing to be wished for. Then came reports of its irritating the kidney and producing hematuria and albuminuria and disturbances of the digestive organs. It was also found that in certain cases in which the urine was strongly ammoniacal the drug was not decomposed and did not yield up its formaldehyde. Unfortunately, these were often the very cases in which its action was most desired, so that there was considerable room for improvement, and when a new derivative of hexamethylene-tetramin, known as helmitol, or hexamethylene-tetramin anhydromethylene citrate, was brought forward, which seemed to possess some important advantages, I was not loath to give it a trial.

My experience with the new drug has now extended over six months, and during that time I have had occasion to frequently test it and convince myself of its merits. Compared with hexamethylene-tetramin, I have found that it can be given in much larger doses without exciting irritation and that it is more uniform in its action; in fact, the reaction of the urine seems to exert no influence upon its sterilizing effect, and this factor can be ignored during its administration.

In most of my cases I have had no opportunity to make thorough examinations of the urine, so that I was unable to determine its degree of antiseptic power; all that I know is that in cases in which the urine was turbid and filled with mucus and pus, it rapidly cleared up and lost its offensive odor.

The drug also seems to have some pain-relieving quality, for even before the urine had become perfectly sterile the tenesmus was often greatly diminished.

I have recently read an abstract of an article that appeared in a German journal detailing some comparative experiments with hexamethylene-tetramin and helmitol in the Hygienic Institute of Zürich, in which the author, Dr. Müller, after a series of thorough tests, found that the latter had a much more pronounced antibacterial action than the former. All my experience, however, has been purely clinical, and is recorded in the following observations, the only ones of which I was able to keep notes:

Case I.—Mr. J. C., sixty-nine years old, had suffered for several years with bladder trouble and more or less tenesmus. When I first saw him (May 15, 1903) he was passing his water

about every hour, and complained of considerable pain during the act, and only voided two or three drams at a time. He passed in my presence about 3½ drams of urine, which was very turbid and ammoniacal, and contained considerable mucus and pus. Examination of his urethra revealed no stricture, but on examining per rectum I found enlargement of the left lobe of the prostate. Treatment was initiated by gentle massage of the prostate, and 15 grains of helmitol given four times a day. I saw him again on May 17, and learned that he was no better; it seemed as though the urine flowed a little more freely, but try as he would he could not pass over three drams in my office. I did not massage his prostate this time, but waited until May 19, when this procedure was thoroughly carried out. Up to that time he had been unable to pass more than three drams of urine, which had not shown any improvement thus far. On May 23 the patient returned, and on this occasion he passed 6½ drams of urine, which was much less turbid and neutral in reaction. The prostate was again massaged and he was given 15 grains of helmitol every three hours until 75 grains had been taken. The additional 15 grains seemed to help him very much, for on May 26 he voided in separate glasses about 8 ounces, which was almost clear and of slightly acid reaction. The tenesmus had greatly diminished, and he was able to hold his water for longer intervals. The prostatic trouble had not improved thus far under treatment, which was continued. May 30, the condition was not much changed since his last visit, only that he said he felt much better and that during the night he did not have to get up as often as formerly. June 2 he passed 7 ounces of urine in my office, which was slightly acid and almost clear, the ammoniacal smell having entirely disappeared. His prostate was smaller and he said he had only been up three times the previous night to pass his urine. I reduced the dose of helmitol to 15 grains, four times a day, but still kept up prostatic massage. June 5, patient returned well pleased. The urine was entirely clear, neutral in reaction, and was passed at much longer intervals, only once at night. The prostate had further diminished in size, although not quite normal. The dose of helmitol was now reduced to 15 grains, morning and evening. June 9, the symptoms had all disappeared and he had slept for seven consecutive hours without awakening, something he had not done for three years. The helmitol was then discontinued, but the massage kept up for several more weeks. At that time the urine was neutral, perfectly clear, and contained no pus or mucus. July 2 he was discharged from treatment.

Case II.—Miss M. A. R., chorus girl, consulted me, April 14, 1903, complaining of considerable burning when passing her urine, which was quite frequent. On examination I found an acute gonorrhea which had invaded her urethra. I gave her a hot saline douche, painted the whole vagina with a 4-per-cent. protargol solution, and inserted a dry cotton tampon. Helmitol, 15 grains, was prescribed, four times daily, and she was instructed about her diet, etc. On the following day I repeated the treatment, and instructed her that on removing the tampon she should take a hot douche. This treatment was continued up to the ninth day, when the burning had entirely disappeared, though the discharge had not all ceased. The dose of helmitol was reduced to 15 grains, three times a day, and the vagina swabbed with a 6-per-cent. protargol solution. On the seventeenth day I discharged her as cured.

Case III.—Mrs. R. J. C., came to me with the following history: She was passing urine about every hour, had more or less tenesmus, and had a dull feeling over the pubes for the past six months. She was unable to void urine in my office, so I drew off about two ounces. It was very ammonical and filled with pus but no sugar or albumin. Treatment was begun by washing out her bladder with a ½-per-cent. solution of protargol, using about 11 ozs., and prescribing 15 grains of helmitol four times daily. She returned in two days without marked improvement. Treatment was continued. On her next visit, three days later, she stated that during the night while on the commode she felt as though she had passed a large lump of something, which she brought to me, and which, on examination, was found to be a mixture of blood, pus and mucus. I again washed out her bladder with a 1-per-cent. protargol solution and continued the helmitol. She called the following day and said she felt better than she had for over six months. Examination of the urine showed that the pus had diminished one-half. The tenesmus had subsided entirely, and the interval between urinations had lengthened to about two hours. I kept up the original treatment for the next six weeks, and at the end of the fourth week the urine was entirely free from pus and the tenesmus had entirely disappeared.

Case IV.—Mrs. S. C. G., aged twenty-seven years, mother of four children. About two months before consulting me she had a miscarriage, and was confined to her bed about three weeks, during which time she was curetted. Directly after the operation she complained of frequent micturition and at the end of urination voided considerable blood and pus. She had consulted her regular family physician, who seemed to be unable to give her any relief, and sent her to me. On examination on June 13 I found the parts normal in appearance, except that the meatus urinarius was slightly inflamed. I catheterized her and drew off about 5 ounces of ammonical urine which contained considerable pus mixed with blood. I immediately washed out her bladder with a ½-per-cent. solution of protargol, prescribed 15 grains of helmitol, four times daily, and sent her home to bed. I called the next day and again washed out the bladder with a ½-per-cent. protargol solution and kept up the helmitol. This same procedure was repeated daily. Up to the fourth day there was no marked improvement, but on the fifth day the urine com-

menced to clear. I then increased the strength of the protargol solution to 1 per cent., and continued the helmitol. This treatment was continued for ten days more, when she came to my office. Examination showed the urine to be almost free from pus and blood. The helmitol was continued, but the irrigations stopped, and at the end of another week I discharged her cured.

Case V.—Mr. H. A. N., called at my office May 20, 1903, with the following history: Three weeks prior he had contracted gonorrhea and made a confident of one of his chums, who in turn advised him to get a patent preparation. This he had injected three times a day, and at the end of ten days the dischorge had ceased, but he noticed a peculiar dull pain over the pubes. On examination of his urine (two glass test) the first glass was very turbid, while the second was nearly as bad. He was passing urine every hour or so. His temperature was 101.2° F. I advised him to go home to bed, and prescribed 15 grains of helmitol four times a day, and ordered hot applications to be made over the pubes. On visiting him the next day I found his temperature 100.8° F.; the condition of the urine was about the same. Treatment was continued. On the following day the temperature was 99.2°; the pain had almost all gone, and the urine looked better although it still contained quite some pus. On the fourth day I washed out his bladder (glass catheter) with a 1-per-cent. solution of protargol. On the fifth day the urine was much clearer, and the bladder was washed out as before. On the sixth day the urine was entirely free from pus. Helmitol was continued, but the irrigations stopped. The patient continued taking the drug for fourteen days when his urine was normal and free from pus and has remained so.

Case VI.—E. R. L., thirty-two years old, had suffered with gonorrhea since June 3. On August 3 he complained of urinary tenesmus, and passed a very uncomfortable night, having to get up several times to urinate. On examination I found both portions of urine very turbid with traces of albumin. Helmitol, 15 grains, was prescribed four times daily. August 4, the urinary tenesmus and turbidity unchanged. August 5, urinary tenesmus not so marked, but still severe. August 6, treatment continued. Tenesmus at night about the same; urine still turbid, and of slightly acid reaction. August 7, urine slightly less turbid. August 8, urine as bad as on August 3, and on passing his water more or less pain in the urethra. August 9, urine slightly improved, and treatment kept up. August 10, urine looked better than on any day heretofore and showed no trace of albumin. August 11, patient complained of a slight chill, which, no doubt, was caused by sleeping with open window at night and a sudden rainstorm coming on. The urine was much improved, but there was a slight discharge from the urethra. Temperature normal. August 12, urine less turbid than on preceding day; urethral discharge still present. August 13, urine almost clear save for a few floating shreds. August 15, urine clear save a few shreds; slightly acid reaction. Tenesmus had entirely disappeared since the fourth day. Still a slight urethral discharge. The above treatment was continued until August 20, when the discharge had ceased entirely, the urine being perfect except a few shreds. Helmitol 15 grains four times a day was continued and I gave him some gelatin bougies containing one-half grain of protargol, to be inserted at night before retiring. This treatment was kept up until September 1, when all shreds had disappeared from the urine.

Case VII.—R. M. S., aged twenty-seven years, actor, called to see me May 5 with an acute anterior gonorrhea, this being his first experience. On examination I found the meatus highly inflamed and swollen and a very profuse discharge. He complained of an intense burning sensation in passing his urine and had very painful chordee four or five times during the day. I gave him a 1-per-cent. protargol solution to use in a hand syringe, and 15 grains of helmitol every four hours, and for the constant erections directed him to use ice cold ablutions. At his next visit, May 7, the discharge seemed to have increased more than in any of my former cases while using protargol hand injections, but I continued this treatment. The chordee was considerably better, and although the urine scalded some, this was not quite as severe as on his first visit. May 9, discharge reduced somewhat and not so thick and viscid. The burning had nearly subsided; the chordee had all disappeared. May 11, the discharge was of a seropurulent character. I increased the strength of the protargol injections to 1½-per-cent. and kept up the helmitol. May 14, the discharge was of almost watery consistency; no pain or discomfort of any kind. Treatment continued. May 18, the discharge had decreased a great deal, so I discontinued the protargol, and substituted 1½-per-cent. solution of sulphocarbolate of zinc injection. May 21, no more discharge seen since the afternoon of the day before. Helmitol was discontinued, but the zinc injection kept up. May 27, there being no discharge for nearly a week, and the patient having to fill a summer engagement out of town, I advised using the zinc injection for another week. He wrote to me two weeks later that there had been no more discharge and that he had drank beer and had seen no ill effects.

The Effect of Protoplasmic Poisons on Tryptic Digestion.—Solutions of trypsin, of a strength greater than that of .2 per cent., are according to R. Kaufmann (Hoppe-Seyler's Zeitsch., Sept. 19, 1903) not affected by the action of toluol, chloroform, thymol and sodium fluoride, extending over a period of twenty-four hours. Weaker solutions of trypsin are affected, while those of a strength of .02 per cent. or less are rendered inert. The above antiseptics act toward bacteria in the same way as they act toward ferments. This indicates that there is apparently no essential difference between fermentative and bacterial action.

CHLOROFORM IN LABOR.*

BY EDWIN RICKETTS, M.D.,
OF CINCINNATI.

Shakespeare expressed it well in saying,

"Not poppy, nor mandragora,
Nor all the drowsy syrups of the world,
Shall ever medicine thee to such sweet sleep."

Normal labors are surgical procedures, and should be so considered from the beginning of the first stage until convalescence has been well established. The importance of carrying out the strictest phophylactic measures on diet, catharsis and cleanliness is better understood and more fully appreciated. The importance of the conservation of maternal force during the puerperal state—and especially during delivery—has not been sufficiently emphasized.

Chloroform, during the latter, is the remedy that is faithfully to conserve the energy of your patient. This truly surgical process—labor—that is traumatically imposed, is the only one of the list that has been shorn of its dignity. This comes from its frequency, and for the low ebb of midwife commercialism that is indulged in by too many physicians that are doing a good amount of obstetrical work. We have too many would-be first-class obstetricians who advise to "let nature take its course," getting in in time to order the cord tied, cut and dressed. If the patient goes along all right, with him it is well enough; but if she does not, and recovers after a siege of sepsis, or goes down to death, he is content to try and excuse himself on the ground of dispensation of Providence. It is not for the cases that have made sheer recoveries that he should be praised, but it is for the death list, and the list of slow and tedious recoveries that he should be criticized.

These are the chaps in medicine that antagonize the administration of chloroform in labor; always trying to show the extreme danger in the use of the drug. The teachings of the modern text-books on obstetrics is rather against the use of chloroform in labor. The results of those that have long used it, and the statistics recently given by J. C. Reeves, of Dayton, Ohio (but one authentic death); goes to prove that this is unwise teaching, even to undergraduates and young practitioners. Lacerations following childbirth, along with contusions of the urinary bladder, uterine and vaginal walls, pelvic floor—too often ending in sepsis and pus—are far more *frequent following* so-called *normal labors* than are those who have been carefully delivered under chloroform.

For the reason that the Hyderabad and similar commissions have not settled some scientific points as to the modus operandi of the drug is no contraindication for its use. It conserves her strength; it annihilates that pain that none but the parturient woman can intelligently describe. It does not increase the risk of post-partum hemorrhage. It lessens the risks of the soft tissues being lacerated. It does not add to fetal mortality. The Biblical objections are myths, and they are answered by another which says, "Adam was put into a deep sleep before the rib was removed for the making of the first woman." Today, as then, man is the first to demand prompt relief from trivial pain, and the first objector for any extended anesthesia to women in labor.

Chloroform was first used in Edinburgh in 1847 by Sir Jas. Y. Simpson. He says it should be used "to diminish and annul the physical pains that accompany the passage of the child's head through the pelvic cavity and outlets." That the reputed failures and misadventures are attributable to two causes. First, impurity; second, in not giving it in *sufficiently large* and *rapid doses.* He says, "For operative purposes in midwifery, the anesthetic state should be as complete and profound as when it is induced for operative purposes in surgery." After the first full dose, a few inhalations before or with each returning uterine contraction are generally sufficient. The state of anesthesia should be made more deep as the head passes the perineum and vulva. His rules were: (1) Begin the inhalation of chloroform when the patient *complains* of *much pain.* This is generally toward the end of the first stage. (2) *Always inculcate perfect quietness around the patient, particularly when commencing to give the chloroform.* (3) Only give it during the pains, and withdraw it during the intervals.

Exceptions.—Give a whiff of the chloroform also during the intervals when the pains are very severe, and the patient continues complaining of them. Give small doses, or only repeat them every second or third pain when the chloroform affects the action of the heart and uterus. *These cases are very rare.*

(4) When given during this stage, the anesthesia need not be deep, unless the suffering be great or the system of anesthesia disagreeable. (5) As the second stage progresses make the anesthesia so complete as to destroy all sensibility. (6) Do not allow the urinary bladder to become overdistended. (7) *Do not restrain the patient to one position.* (8) Be sure to remove the chloroform as soon as the child is born. (9) Do not awake the patient artificially.

Notwithstanding these rules were laid down by Simpson fifty-six years ago—who was the first to administer chloroform in labor and its first and greatest champion—chloroform in labor has been sadly neglected, and without cause. As Simpson says, if the patient suffers, relieve her; no matter what stage of labor she is in. If the pain is continuous, the chloroform should be administered to the point of relief, which should be maintained.

The exhausted pregnant uterus for its unsuccessful efforts at delivery in a prolonged labor may be the cause of post-partum hemorrhage. After this exhaustion, with the delivery to be completed under chloroform, after the head has been resting on the perineum for hours, and for

* Read before the Cincinnati Academy of Medicine.

any post-partum hemorrhage, the remedy has been accredited as the cause. Abdominal surgery has thrown much convincing evidence on this point. Many cases in which the abdomen has been opened for the removal of a fibroid, a cystoma, or appendix—at the fourth, fifth, sixth, seventh or eighth month, under surgical anesthesia the *strong uterine contractions have been observed* by *operator* and *assistants*. Recovery of these *patients takes place* and *with no precipitation of labor for the administration of chloroform*.

Impurity and expense of chloroform is hardly to be considered at this day, for the reason that we have many reliable manufacturing firms putting out the drug in its purest form, and at reasonable prices.

Simpson says that no special kind of inhaler or instrument is necessary for its exhibition. "A little of the liquid diffused upon the interior of a hollow-shaped sponge, or a pocket handkerchief, or a piece of linen, or paper, and held over the mouth and nostrils so as to be fully inhaled, generally suffices in about a minute or two to produce the desired effect.

Whatever may be used for holding the chloroform, it should never be allowed to rest on the patient's face. It should be held in the hand and the anesthetic frequently replenished on the inner surface in five to ten-drop lots of the drug, and held to the side of the patient's face so that none of the chloroform can come in contact with the eyes. With this frequent exposure of the patient's face, you can better regulate the intelligent administration of the drug. Before beginning the administration of the drug, observe the rule of Simpson of *exacting quietude;* gaining the confidence of the patient by assuring her that all is to go well. Never force the drug on to any patient. Show and explain to her how to breathe it in slowly, until she is accustomed to the odor, and especially as to its early effects. Assure her from time to time that she is to be relieved of the pain. Is not to know when the child is born, but that she is to be able *to reply to any questions that you must be sure to ask*. This is to reassure her more than anything else you can say. Do not be in a hurry to begin. It must be quietly, having the patient begin by inhaling in a shallow manner (never beginning by deep inhalation) accustoming the taste, smell and effects to the patient. Tongue forceps are an abomination; while the annointing of the face is an unnecessary inconvenience, and in both instances are alarming to the patient—things to be positively avoided. Deep inspiration is seldom necessary with the proper management of the case; neither is the previous administration of morphine or whisky necessary.

The covering of the face with a napkin or handkerchief on which is dropped the chloroform is to be avoided, for the reason that the face should not be continuously obscured from the physician.

Fold the napkin or handkerchief, holding the same in the hollow of the left hand. In taking the hand from over the nostrils and mouth—for the dropping of the chloroform on the cloth—the patient is sure of alternating intervals of inhalations *of air alone to be followed by chloroform admixed with air*. With the cloth in the hand, the facial expression with its color, pupils, breathing, temperature of the nose, ears and face are easily and more intelligently kept under observation. The pulse and respiration are to be intelligently observed.

Pulmonary tuberculosis, *with any of the heart lesions, diabetes or albuminuria are not contraindications for the use of chloroform*. In some instances it has proven a prophylactic remedy of no mean degree in puerperal convulsions.

The tendency of the day is toward numerous complicated anesthetic outfits for the administration of chloroform, but the simple rules, with the simpler means, as suggested by Simpson, have not been improved upon.

In the administration of chloroform in labor the tendency is to use from four to six times as much as is necessary. The same criticism stands good in the general use of chloroform. In quite an extensive use of chloroform in labor, I have never found it necessary to resort to any of the cardiac or general stimulants. On the other hand, I have seen a weak pulse grow strong by its use; a chaotic condition of the household changed to quietness and confidence for the artificially induced sleep. For this there was

> "No danger in what show of death it made,
> More than the locking up the spirits a time,
> To be more fresh for the reviving."

MEDICAL PROGRESS.

MEDICINE.

Internal Administration of Tuberculous Antitoxin.—The internal administration of various antitoxins has been tried at various times with more or less success. Roncagliolo claims to have increased the antitoxic power of the serum of the patients which he treated by this means and moreover noticed an encouraging therapeutic effect. F. Figari (Berl. klin. Woch., Jan. 18, 1904) has lately made some investigations for the purpose of determining whether the component parts of the blood of animals immunized against tuberculosis contained antitoxic substances and whether these, when administered internally, would afford a resistance against tuberculous toxins. Before and after the experiment he determined the agglutinating powers of the sera and their resisting powers against a lethal dose of tuberculin. The difficulty of providing fresh material was overcome by drying the blood of immunized animals and then reducing it to powder form. The experimental animals were guinea-pigs, to which he gave three grams of this powder daily, mixed with their food. The results obtained were as follows: The sera, after twenty-five days, manifested an agglutinating power of 1:5 in twenty-four hours. After fifty-four days of treatment, the relation was 1:12; and in eighty-five days, 1:25. In the latter instance the agglutination was 1:10 even after six hours. No

agglutinating phenomena were present in the sera of any of these animals previously. The antitoxic relations were as follows: After eighty-five days a lethal dose of tuberculin was injected into all the animals. About one-half remained alive for thirty-six hours, while the control animals died after twelve to sixteen hours. The remaining animals all survived the injection. The powder was also given to one of the author's patients. For eighty days he was given four grams daily with a noticeable improvement at the end of that time. The gain in weight amounted to almost 12 pounds, and the agglutinating power of the serum rose from 1:10 to 1:50. These experiments will be continued.

Etiology of Gout and Its Treatment.—The uric acid diathesis has long been considered to play an important rôle in the production of gout. Numerous authors have described an accompanying form of dyspepsia, and Falkenstein (Berl. klin. Woch., Jan. 18, 1904), as the result of these observations and his own, that the cause of gout must be sought in the stomach and that a diseased process involves the glands of the fundus which secrete hydrochloric acid. The main point in his method of treatment is the administration in large doses of hydrochloric acid, from 10 to 20 drops in two glasses of carbonated water three times daily. For the acute attacks he prefers aspirin, as it does not interfere with free perspiration. Opium is not recommended as it inhibits secretion. Colchicum he believes of comparatively little value, as it merely alleviates the attack without affecting the retention of the uric acid. The alkaline waters are also contraindicated, as they neutralize the free hydrochloric acid in the stomach, which is already diminished in amount. As for thermal treatment, he has always found dry heat of greater value in local applications than moist, and ice is apt to exert a harmful influence. Sugar is entirely contraindicated; the diet should be moderate and exclude nucleic substances. Alcohol is also contraindicated. The main point made by the author is the administration in all cases of sufficiently large amounts of hydrochloric acid.

SURGERY.

Diagnosis and Treatment of Intussusception.—Acute intussusception is the most common variety of intestinal obstruction in infants and forms about one-third of all cases of acute obstruction. H. Roth (Med. Rec., Dec. 19, 1903) has reviewed the literature upon the subject and reports four cases which have recently come under his care. The importance of an early diagnosis is urged, and since the symptoms associated with this disease are usually characteristic there ought to be few failures in recognizing it. The disease usually begins suddenly and, as a rule, in children in previously healthy condition. The first and most important symptom is pain. This is usually paroxysmal and colicky in nature. Soon after the appearance of pain, vomiting occurs at first at long and later at shorter intervals, and may become projectile in character. With the onset of pain a marked change in the appearance of the child will be noticed. It rapidly passes into a condition of shock with anxious expression of the face, pale skin, rapid and feeble pulse, the skin may be covered by cold perspiration and the respirations may be shallow. This appearance of illness is of great diagnostic value for the child, which a few hours before was in perfect health. Several hours later there may be a discharge of bloody mucus, but this may not appear till the finger is inserted and withdrawn. Tenesmus may occur later, especially when the tip of the intussusception can be felt per rectum. In the early part of the disease there is no rigidity of the abdominal wall, and during the paroxysms of pain we may feel a tumor or fulness, especially in the right iliac fossa. If the case is allowed to proceed the picture soon changes by the addition of symptoms referable to the gangrene and peritoneal sepsis which rapidly appear. It is important, therefore, that the diagnosis should be made at an early hour and treatment instituted. The treatment of the disease in former years was principally mechanical, by injections and inflation. The mortality from this method was about 75 per cent. During recent years operative treatment has come more into vogue, and with early surgical interference the recoveries have greatly increased. All authorities are now agreed that the condition should be likened unto a strangulated hernia and that mechanical means of relief should not be persisted in, but that a laparotomy should always be done within the first few hours. Before mechanical means are attempted, furthermore, the patient should be prepared for operation and anesthetized so that surgical interference may at once proceed, if other methods fail.

Excision of Tuberculous Mass from Liver.—Cases in which portions of the great abdominal viscera are cut away possess a great deal of interest, partly because of the difficulty of the operation and of the importance of the technic. This case, reported by Robert M. Rome (Ann. of Surg., Jan., 1904), is briefly outlined as follows: Patient was a woman, forty-two years old, who had never been seriously sick but who had been "bilious" all her life. The family history was good, save that her mother had suffered from some obscure liver trouble. In the middle of August, 1902, she was suddenly seized with severe pain in the right lumbar region which lasted twenty-four hours, after which it decreased in violence, but the part remained tender. She was obliged, although able to get about, to favor the right side, because of a pulling pain there, and she was unable to sleep or rest upon that side. When walking, she bent somewhat to the right and stooped forward. Six weeks after the onset, she was operated upon; an incision being made over the site of a slight tumor which had developed at a point midway between the cartilage of the tenth rib and the crest of the ilium. The intestines were adherent to the liver, and after these organs had been separated, a tumor in the right lower lobe adherent to the parietal peritoneum was probable. It was apparent that it could be removed by cuneate section. The sutures were introduced half an inch apart and half an inch from the margin of the triangle. After a number had been inserted, the wedge containing the growth was cut away with scissors. The tumor removed was about the size of a goose egg and, despite the considerable area excised, a speedy tying of these sutures satisfactorily stopped all hemorrhage. The abdominal incision was closed without drainage. A microscopical investigation revealed a typical tubercle. Dr. Keen, in reviewing the surgical conditions of the liver, mentions (1) herniated left lobe, 5 cases; (2) syphiloma, 12 cases; (3) carcinoma, 17 cases; (4) angiofibroma, 1 case; (5) cavernoma, 1 case; (6) endothelioma, 1 case; (7) angioma, 4 cases; (8) adenoma, 7 cases; (9) sarcoma, 5 cases; (10) cystoma, 1 case; (11) small calculi, 1 case; (12) hydatid cysts, 20 cases. It is thus seen that the case above reported adds another tumor to Keen's list.

Pathology and Treatment of Recent Fractures of the Patella.—So much has been said for and against the operative treatment of this frequent condition that a résumé of the present status of the literature is of interest. S. C. Plummer (Ann. of Surg., Jan., 1904) believes the following to be a fair statement of the present status of the question: (1) Operative treatment

should never be undertaken except under the best aseptic conditions; (2) presupposing these to exist, not every case should be subjected to operation, but only those in healthy patients of suitable age with at least half an inch of separation of the fragments and lateral tears which compromise the "reserve" extension apparatus, or in patients following arduous occupations; (3) the operative treatment fulfils all the indications for treatment in a manner which the non-operative method can only partially receive, but good functional results follow the non-operative treatment as a rule; (4) early massage in all cases favors the early and complete restoration of function of the joint and should be used in all cases; (5) if operative treatment is employed, the open arthrotomy should be used; (6) absorbable suture material applied to the soft parts is sufficient in nearly every case.

Demonstration of the McGraw Ligature.—A great deal has been written about this method of intestinal technic. It was devised by Theodore McGraw twelve years ago, but was not extensively used until very recently, because of the popularity of the Murphy button. Continued reports, however, from all over the world, show that this popular mechanical device is not without very grave disqualifying objections. A. J. Ochsner (Ann. of Surg., January, 1904) reports a series of 40 cases of gastro-enterostomy in which he made use of the elastic ligature. The effect on the patient was no greater than that following the use of the Murphy button. In all these cases there had been no peritonitis. Three had died, one two weeks after the operation from exhaustion, another in three weeks and another in six weeks. So simple is the technic of this ligature that he had recently used it in all cases in which there appeared to be even the slightest pyloric obstruction. Theoretically, Ochsner believes that all mechanical means must ultimately be abandoned and that surgeons must do all of these operations with the needle and thread. Practically, however, he had tried nothing which had been as satisfactory for creating gastro-enterostomy or entero-enterostomy in suitable cases as this method of elastic ligature.

Treatment of Typhoid Perforation.—This much-dreaded complication, which has a mortality rate of over 99.9 per cent., according to accredited authorities, is being gradually stripped of its deadliness through surgical intervention. R. G. Le Conte (Ann. of Surg., Jan., 1904) reports three consecutive successful cases operated upon during the last month at the Pennsylvania Hospital. In the first two the recovery was permanent, in the third, recovery from the primary perforation was assured by operation, but the patient died ten days later from a secondary perforation. Since the symptoms indicative of perforation are as yet by no means understood, a close review of these cases must be of great value. In general the histories were as follows: *Case I.*—Male. Russian Jew, thirty-eight years old, suffering from an attack of moderate severity; temperature on admission 102.2° F. Twelve days after admission, during which time the case had presented no symptoms of an unusual character, temperature touched normal. Convalescence was uninterrupted, and he left the hospital fifty-six days after the onset of the attack. He was readmitted to the medical ward under the care of Dr. Stengel three weeks later. The temperature was 103.3° F., pulse 112, respiration 38, tongue coated white, edges and tip red, very tremulous, a few râles posteriorly on the right side of the chest, spleen enlarged and tender. Abdomen rounded, soft, flabby, slightly tender; rose spots; urine, slight trace of albumin, hyaline and granular casts. Widal test not positive. It was a clear case of recurrence. On the eighth day after admission he complained of pain in the abdomen, which for twelve hours was not severe. At about the tenth hour of pain, the temperature was 101.2° F., four hours later it had fallen to 97.8° F., pulse 100; an hour and a half later there was profuse sweating with shallow respiration and anxious expression. At that time temperature was 97.6° F., pulse 140, respiration 40; abdomen tympanitic, rigid and tender, especially on the right side. Three hours later, under ether, a three-inch incision was made in the right semilunar line below the umbilicus. This was three hours and a half after the first evidence of collapse, six hours and a half after the onset of severe pain and 17 hours from the first pain noticed. Some cloudy non-odorous fluid escaped. The cecum was brought out and eight inches up the ileum a large inflamed Peyer's patch was found with a small perforation in the center. The pelvis was thrown downward by tilting of the table, and the pelvic and peritoneal cavity irrigated with salt solution. It was mopped dry, rubber drainage inserted and five wicks of gauze run between the coils. Temperature after operation, 98.2° F., pulse 128, respiration 40. The temperature reached normal eight days after operation, and convalescence was uninterrupted. *Case II.*—The Widal test was positive. On the sixteenth day immediately after a bath, he complained of sharp pain in the right side. There was no vomiting. Leucocytosis, 9,600; pain and tenderness increased. An hour later temperature 100° F., pulse 110, respiration 24. Five hours after onset of pain he was operated upon. One foot from the cecum a large necrotic ulcer was seen with pin-head sized perforation; no attempt at walling off was seen. The hole was inverted. A wet toilet of the peritoneum was done; the reaction and subsequent convalescence was normal. Both these cases, in the opinion of the author, probably owed their recovery to the fact that the symptoms they presented were of an almost classic character. In neither case was any attempt evidenced of an effort to "wall off." In both cases the perforated area seemed to be in contact with the parietal peritoneum. This is much more sensitive than the visceral sheet and may be the reason why some cases present practical symptoms while others do not. The presence of omentum covering the perforation might in itself be sufficient to delay the advent of symptoms for a fatal period.

Removal of the Prostate and of the Prostatic Urethra for Senile Enlargement.—In this country the perineal route has been brought to such a stage of perfection that it is of particular interest to note what a representative operator of England has to say upon the suprapubic operation. B. G. A. Moynihan (Ann. of Surg., Jan., 1904) records the history of 12 cases and details the technic which took birth virtually in an operative accident. While shelling out the prostate of a case some two years ago, he unintentionally removed the entire gland together with the prostatic urethra. He was naturally alarmed at the prospect before the man, but to his surprise convalescence and recovery of function were complete. The technic is as follows: The bladder is washed out with one per cent. carbolic acid and filled with ten or twelve ounces of the same solution. A rubber glove is worn on the right hand, so that after the rectal manipulations the removal of the glove will leave a clean hand. The bladder is opened above the pubes. Its walls are then made fast by a heavy silk ligature to the abdominal incision. This prevents tearing of the viscus. These are left for three days. The trigone is then incised immediately behind the internal meatus. The prostate is then steadied with the right finger in the rectum, the larger the organ the easier the stripping. The mucous membrane is torn

freely. The anterior portion of the prostatic urethra at its junction with the membranous portion is torn through after the prostate is elsewhere entirely free. A catheter is passed and the bladder is freely flushed with hot salt solution. On the fourth day and on each day thereafter a catheter is passed, and the bladder washed. On the seventh day the catheter is tied in place. If the patient be feeble and old, it is desirable to allow him to get up before the end of the first week. The urine ceases to pass through the wound about the twentieth day. In about a month patient is usually passing urine spontaneously at natural intervals without discomfort or difficulty. Occasionally, where the cystitis was extremely severe and the urine foul, after the irrigation of the bladder, a stream of oxygen was passed through the cavity, the suprapubic wound having been capped with an impervious cover which allowed but a small leakage of the gas. In this way, the whole cavity was thoroughly oxyginated and distended, and healing was certainly hastened. Of the 12 cases operated upon, one died.

Amputation at the Hip-joint for Sarcoma of the Femur.—The question of the curability of this condition by operation is one that is still more or less unsettled. From personal observation, W. B. Coley (Am. Med., Jan. 9, 1904) believes that sarcoma in this locality represents one of the most malignant forms of tumor with which we have to deal. He reports five cases of sarcoma of the femur treated by hip-joint amputation, of which two died within a year, one lived two years, one was not traced, and the last, a recent case, is the only one known to be alive. Of four patients treated by amputation just below the trochanter, one with sarcoma of the femur died four months afterward of lung metastases, the second had a local recurrence at the end of fifteen months, and after disarticulation had been done, lived two years longer; the third, with melanotic sarcoma of the skin of the thigh, died four months later of general involvement; the fourth, a recurrence in the thigh after primary sarcoma in the tarsus, is well six years after the operation. The author believes that hip-joint amputation is to be preferred to resection or to amputation through the shaft. Recurrence being almost the invariable rule after all methods of treatment, a thorough course of mixed toxine treatment after operation, as a prophylactic measure, offers the best hope of a permanent cure.

Obstruction of the Large Gut.—Definite obstructions, due to adhesions which arise from the chronic irritation of inspissated feces, are a very prolific source of augmenting the constipated condition. W. Arbuthnot Lane (Lancet, Jan. 2, 1904) states that he discovered the existence of this condition accidentally while operating upon cases of supposed nephrolithiasis. The relief of the pain and the constipation in these cases were evidently due to the extensive separation of the colon from the kidney. When fecal matter accumulates in the intestines, there are two portions which are particularly likely to become inflamed. These are the cecum and ascending colon and the sigmoid. In consequence of this irritation the walls become inflamed to a small degree and peritoneal adhesions form between it and the abdominal wall. These adhesions oppose the downward and inward displacement of the loaded cecum. Gradually they thicken and in time suffice to support the overloaded bowel in the erect position. The adhesions which bind down the cecum externally also fix the proximal portion of the appendix. This may very often lead to attacks of appendicitis. The formation of adhesions between the cecum not alone supports the overloaded organ but also prevents its displacement upward and inward and the formation of volvulus. In spite of the thorough division of such bands of adhesion and the complete liberation of the gut, a large percentage of cases will recur. It being probable that the injury arising from pain and autoinfection from decomposition does greater harm to the individual than any good he may derive from absorption of foodstuffs from the part, Lane determined to exclude the greater part of the large bowel from the intestinal path. He therefore connected the ileum with the cecum by making a very free lateral anastomosis between the lower limit of the ileum and the upper part of the rectum, or the sigmoid, if the latter were not accessible. The results of such treatment have been very satisfactory, the pain and tenderness having disappeared, the cachexia and inactivity resulting from the absorption of ptomains having likewise passed away. The only objection to lateral anastomosis is that the presence of any large quantity of solid fecal matter near the opening in the large bowel may cause feces to pass on into the cecum. As a guard against this, he now divided the ileum closing its distal aperture, making its proximal section open into the lower end of the large bowel, thus rendering it impossible for any material to enter the cecum.

Hour-glass Stomach.—Hour-glass stomach may arise from three separate causes—chronic gastric ulcer, perigastritis due to adhesions, and cancer. The deformity in itself constitutes a distinct disease, which is associated with a peculiar train of symptoms. A. W. Mayo Robson (Lancet, Jan. 2, 1904) states that the name "hour-glass stomach" was adopted long ago when the disease was thought always to be congenital and before it was recognized that the stomach might be divided into more than two cavities. He cites 23 cases which at operation all showed distinctively that hour-glass stomach owes its origin to definite organic disease. Doubtless very rarely it may exist as a congenital malformation, just as narrowings may be found at the pylorus, in the intestine or in the rectum. In an experience of over 1,000 operations on the upper abdomen, however, in which the stomach was seen and examined, and of about 400 which have been executed directly upon the stomach itself, he has not met with a single case of congenital hour-glass constriction. The symptoms for a time depend entirely on the cause, whether that be ulcer, cancer or perigastritis, but ultimately, when the deformity has developed, the signs are more or less distinct. The cause can usually be diagnosed without much difficulty, and in the majority of cases the effect can be as positively proven. One of the most characteristic signs of hour-glass stomach is the following: If the stomach has been washed out until the returning fluid is absolutely clear, there flows suddenly from the tube a foul stream of material, the supposition of hour-glass stomach is pretty definitely substantiated. Wolfer showed that on washing out the stomach the fluid might entirely disappear, it having passed through the second pouch. The distinctiveness of the symptoms naturally depends upon the position of the contraction. In the greater number of the cases cited, the constriction was located four inches from the pylorus, and in nearly all the cases the proximal cavity has been larger, giving rise to the well-known symptoms of dilatation of the stomach due to pyloric stenosis. Frequently the second cavity is of minor importance, and in such cases the condition is usually not diagnosed, the operation being undertaken simply for relief of the dilatation and the ulcer. The treatment of the condition must be purely surgical, and the technic cannot be decided upon until after the abdomen is opened. When the stricture is centrally located, gastroplasty is the most desirable procedure. This occasionally may be compounded with pyloroplasty. Gas-

troplasty may be performed either by means of simple sutures or by suturing over the largest size bone button, the important point being to make a sufficiently large opening. Dr. Jos. A. Blake has recently suggested a modification of gastrogastrotomy after the method employed by Finney in pyloroplasty. The technic served well in one case. It is of the utmost importance that drainage be perfect. In two cases of carcinoma in which the stomach was removed almost in toto, one case lived for sixteen months and the other is still progressing favorably, although the operation was done three years ago. Of the 23 cases cited, 19 were simple and 4 were malignant. Of the simple cases, 11 were operated upon by gastroplasty alone and all the patients recovered.

An Improved Hemostatic Bandage.—As far back as the sixteenth century, this matter was receiving attention. Ambrose Pare is accredited with having devised the bandage recently popularized by Esmarch. Siegfried Spiegel (Zentralbl. f. Chir., Dec. 26, 1903) describes an ingenious apparatus by which the amount of pressure exercised upon the extremity can be definitely measured. This, however, is not its only advantage. It is well known that with the average elastic roller bandage, the method of liberation is extremely irregular, the pressure usually being taken off with a snap which places an undesirable and sudden pressure upon the recently ligated vessels. In this apparatus the bandage passes around the extremity but once and the pressure is relieved by a thumbscrew. The material of which it is made is not elastic. In the latter class of bandages there are only two conditions possible—either the blood is entirely shut off, or it is turned loose with a rush. The new instrument is shown in an excellent engraving.

Anastomosis for the Vas Deferens.—Suture of this important duct is of great interest. A successful case is reported by J. L. Thomas (Brit. Med. Jour., Jan. 2, 1904). The case was one of bilateral severance of the vas by a knife. An oblique incision was made over the course of the inguinal canal, and the two severed ends which were found to be separated about half an inch, were brought together. The testicular end of the vas was cut obliquely by means of a cataract knife. The urethral end was split longitudinally for one inch. This free end was further divided for about half an inch from its extremity so as to provide two tails of equal size. Each tail consisted of one-half of the longitudinally split vas deferens. The obliquely cut free end of the testicular portion of the vas was placed with its lumen in contact with that of the testicular portion, and was fixed by means of fine, silk sutures as closely applied as possible. The two tails were then enveloped around the testicular portion and sutured. Layers of fascia were subsequently wrapped around the anastomosed vas and fixed with sutures. The practicability of the above method of anastomosis can be demonstrated on the cadaver by injecting fluid along its lumen when it will be found that the joint is tight. This procedure is easier of application than end to end anastomosis or any form of implantation, and is a valuable step forward in conservative surgery. The article is well illustrated by diagrams.

PHYSIOLOGY.

Observations on the Functions of the Spleen.—In the normal animal, according to T. Lewis (Jour. of Anat. and Physiol., Jan. 1904), the function of hemolysis is carried on by the spleen, but chiefly by other members of the hemolymph series of organs. There is a proliferation of leucocytes in all glands of the series, and a limited destruction of the same in hemal and hemal lymphatic glands. In the latter there is also a destruction of polymorphonuclear cells and coarsely granular eosinophiles. The processes are not widespread. A disintegration of erythrocytes outside the phagocytes takes place, in all probability by a ferment action. Appearances are seen which suggest the view of ingestion by leucocytes of the disintegrated particles of erythrocytes, with the formation of coarsely granular eosinophile cells. There is evidence that all the leucocytes are derived from lymphocytes, and that phagocytes have their origin in hemolymph organs, from the endothelial cells lining the sinuses, capsule, trabeculæ and reticulum.

The Rapidity of the Nervous Impulse in Tall and Short Individuals.—The question as to whether the stature of the individual and the corresponding difference in the length of homologous nerves has or has not any influence on the rapidity of the transmission of the nervous impulse, has been decided by N. H. Alcock (Proc. of the Royal Soc., Dec. 19, 1903), who finds that per unit length, the rate of the nervous impulse is the same in all individuals examined. It takes longer, therefore, for the nerve impulse to traverse the limb nerves in a tall man than in a short one. The difference is .001 second approximately. It is also found that the nodes of Ranvier exercise no influence on the rate of impulse.

The Fat-assimilating Function of the Human Placenta.—It has been proved, according to J. Hofbauer (Hoppe-Seyler's Zeitsch., Sept. 19, 1903) that the nutrition and growth of the embryo are not dependent only on the processes of diffusion through the placenta. Harvey was the first to consider the placenta a digestive organ. Histological investigations enable the author to conclude that with respect to the absorption of fat, the villi of the chorionic membrane, both in the structure and distribution of their element, bear many resemblances to corresponding structures in the mucous membrane of the intestine. The uses of the fat thus assimilated by the placenta may, in the embryo, be manifold. Thus it may build up the fatty tissue as such, may serve in the formation of numerous other tissue elements, and by its own oxidation, may spare the consumption of the proteids.

Chemistry of Blood-Coagulation.—A few new facts concerning the complicated process of blood-coagulation have been discovered by I. Morawitz (Deutsch. Arch. f. klin. Med., Vol. 79, No. 1 and 2). It appears that the fibrin-ferment necessary for clotting, results from the interaction of three substances: a calcium salt, thrombogen, and thrombokinase. The latter itself behaves in many ways like a ferment, since heat and putrefaction destroy it rapidly, and since non-dialyzable and precipitated by alcohol. Thrombogen occurs only in blood and lymph, but thrombokinase can be obtained from all organs. In the circulating plasma neither one of these substances is present in solution; they are only set free after the blood has left the vessels and the thrombogen appears first. During normal clotting only part of the thrombogen is rendered active, hence even the serum contains this substance, which will become active in the presence of kinase and lime.

Influence of Blood-pressure on Blood Composition.—The exhange of fluids between blood and tissues occurs in the capillary system. Here the fluid leaves the vessels, circulates in the interstices as lymph and then is absorbed directly into the venous radicals or enters the veins indirectly through the lymphatics. Increasing or diminishing the blood-pressure will have a decided influence upon this exchange of fluids, as can be seen by comparing the concentration of arterial and venous blood after injections of suprarenin and chloralhydrate. The number of red blood cells in normal, arterial and venous blood is about the same, but when O. Hess (Deutsch. Arch. f. klin. Med., Vol. 79,

Nos. 1 and 2) injected suprarenin into the femoral artery of a dog, the venous blood contained up to 25 per cent. more erythrocytes, while after chloralhydrate there was a decrease to the same degree which can be traced as far as the right heart. The hemoglobin shows the same variations. The fact that arterial blood always remains the same, points to a regulating mechanism within the body which is to be found in the lungs. The softness and elasticity of the tissues of this organ, the distribution of the capillaries and the abundance of lymphatics permit of an absorption of lymph in the case of increased arterial pressure and a secretion of plasma where the pressure is subnormal. The lungs are eminently fitted for this function since the vascular tonus here is independent of that of the systemic blood-vessels. The liver probably also assists in making up the loss of fluid. The variations are only noticed after considerable changes in pressure of short duration; where the blood-pressure is affected over a long period, the entire vascular system will gradually adapt itself so that differences between arterial and venous blood are no longer noticed. After venesection, the regulating mechanism apparently fails, for a diminution of red cells occurs in both arterial and venous systems.

THERAPEUTICS.

Relations between Physiological Action and Chemical Constitution.—A careful study of the relationship between the chemical constitution of phenol and its derivatives, and the effects produced by their action upon the nervous system, has been made by S. Baglioni (Zeitsch. f. Allg. Physiol., Vol. 3, No. 3). He divides these substances up into four groups with their effects, as follows: (1) The ability of phenol to produce clonic convulsions and to increase the excitability of the motor mechanisms of the spinal cord, is also possessed by its salts (phenolnatrium), its homologues (α- and β-cresol), the bivalent and trivalent phenols (pyrocatechin, resorcin, hydrochinon, pyrogallol, phloroglucin), and the naphthols. They all have a benzol-nucleus, or two condensed benzol nuclei, to which are bound from one to three hydroxyl groups, with or without the addition of oxygen. The addition of oxygen or hydroxyl groups reduces the activity; thus: phloroglucin and pyrogallol act only in larger doses. All these substances possess in common the property of producing paralysis when administered in large doses. The addition of a member of the coal-gas series (CH_3) does not diminish the capacity to produce clonic convulsions (cresol), but the presence of several members of this series (CH_3 and C_3H_7) inhibits it entirely (thymol), and in this case there appears only central paralysis, which is to be attributed to the methyl and propyl derivatives. (2) In the second group are substances closely related to the first, consisting of benzol toluol, xylol, anilin, anisol, phenetol, guaiacol and veratrol. The first manifestation of their activity is not excitation but paralysis, which last for a longer or a shorter time, to be followed by clonic convulsions. Of these substances, benzol, toluol, xylol and perhaps also anilin have this in common, namely, the paralysis is not complete, they have in their benzol nucleus no hydroxyl group and have many chemical likenesses among them. Since it has been shown that in the organism benzol is oxidized into phenol, the hypothesis is suggested that this group can elicit clonic convulsions only when a hydrogen atom of its benzol-ring is oxidized into a hydroxyl group. Anisol, phenetol, guaiacol and veratrol have these characteristics in common: the paralysis is profound and of long duration; they are all esters of phenol or pyrocatechin, and they are made up of a phenol (or pyrocatechin) remnant and a methyl alcohol (or ethyl alcohol) remnant. The more distinct paralytic effect is thus understood, since alcohol is a marked narcotic, and the paralysis increases *pari passu* with the addition of alcohol groups. (3) The third group related to phenol are happily characterized by the fact that they elicit paralytic phenomena in the nervous system. They have completely lost the property of producing clonic convulsions. To this group belong chiefly acetanilid, phenylhydrazin, benzylalcohol, benzylaldehyde, acetophone, benzoic acid and salicylic acid. They produce paralytic effects of varying degree, and may be differentiated by means of various characteristics. In the first division of this group belong benzyl-alcohol, benzaldehyde, acetophenone, and benzoic acid. They are all built up from a benzol-nucleus, to which a methyl side-chain is attached. This side-chain is not easily split from the benzol nucleus, but it is easily oxidized to CO_2H, the more oxygen present in the side-chain, the less is the paralytic effect. Thus benzyl-alcohol is a powerful depressant, while still less so is benzaldehyde and next benzoic acid. From these facts one can infer that the narcotic power depends upon the ability to draw oxygen out of the biogen molecules of the nerve-centers, hence upon the power of reduction possessed by these substances. It is well known that benzyl-alcohol and benzaldehyde are oxidized in the body into benzoic acid. (4) The fourth group is made up of the aromatic compounds, which the author has proved to be inert with respect to the central nervous system. Here belong nitrobenzol, tyrosin, hippuric acid, gallic acid, benzidin and pyridin. In this group it is seen that the entrance of CO_2H into the benzol ring inhibits the capacity to produce clonic convulsions, whether the CO_2H is bound directly (gallic acid) or indirectly (tyrosin, hippuric acid). NO_2 is also capable of doing this (nitrobenzol). If the benzol ring is changed by the substitution of an N for CH, physiological action is abolished (pyridin).

Treatment of Gastric Ulcer.—It has been customary to keep patients on a milk diet at least four weeks after a hemorrhage from a gastric ulcer and to avoid all other, especially proteid foods. This, M. Wagner (Münch. med. Woch., Jan. 5, 1904) thinks, is a mistake. He has often observed the good effects of proteids in the hyperacidity of chlorotic girls, without ulcer and was led to try the same diet in ulcer, arguing that albumin binds the free hydrochloric acid, which keeps up the irritation better than any other food. The patients are often in a condition of chronic inanition; to begin with rectal enemata and small amounts of milk would be to keep up the starvation and thus to prolong the healing of the ulcer, while large quantities of milk, sufficient to meet the demands of the system, would be risky. The treatment, as practised by the author, is as follows: Absolute rest for at least four weeks, ice-bag to the epigastrium. On the day of hemorrhage, 200 to 300 c.cm. of iced milk and 1 to 3 fresh raw eggs are given, together with two grams of bismuth three times a day. By the end of the first week, the milk has been increased to 800 c.cm. and the eggs to six to eight a day. Raw, scraped meat is allowed after the sixth day and after two weeks boiled rice or farina and zwieback. In three to four weeks a carefully selected mixed diet is well borne. The amount of bismuth is reduced considerably after ten days and at the same time iron in the form of Blaud's pills or with arsenic is begun. As compared with the milk diet, recurrent hemorrhages are less frequent and the gastric pains are alleviated more readily and the general condition improves quickly. A large number of the patients were again seen a year after the treatment; the majority had experienced no further trouble.

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LEPROSY AND FISH-EATING ONCE MORE.

Certain recent newspaper articles have called attention once more to Dr. Jonathan Hutchinson's theory that the consumption of tainted fish by seacoast populations is the principal cause, perhaps even the only cause of the spread of leprosy. Those who have been subscribers of the Medical News for the last seven or eight years will doubtless remember that our correspondent who was present at the International Leprosy Conference, held in Berlin in October, 1897, summed up what was said at that time with regard to any possible etiological connection between fish and leprosy. Dr. Hutchinson did not attend the conference in person, but he sent his paper to be read and while it was not discussed much during the session itself it was very freely criticized afterward.

The present writer was in attendance at that conference and remembers distinctly that not a single authoritative expert in leprosy agreed even in the slightest degree with the views expressed by Dr. Hutchinson. It must not be forgotten that owing to the circumstances under which that conference was held, at the invitation of the German government, practically all of the most distinguished authorities on leprosy in the world were present. They all seemed inclined to laugh at the idea urged by Dr. Hutchinson.

Such an attitude of mind on the part of all the medical authorities on a given subject may not, it is true, of itself prove the baselessness of a theory. Those who know medical history know very well that most of the theories which have afterward proved fruitful of important advances in medicine have been very bitterly opposed by distinguished authorities when first suggested. In fact the rule has come to be well established that if a new idea comes from a young man and is opposed by all the older men present at a meeting, it is very possible that there may be something valuable in it. However, this cannot be considered at all the case with Dr. Hutchinson's theory. It has now been before the public for nearly twenty-five years, yet without the slightest scintilla of actual evidence to support it. Dr. Hansen, who is very well known for his discovery of the bacillus of leprosy and for important clinical studies on the disease in Norway, tried, for several years, just after the discovery of his bacillus, to find some trace of it in tainted or in fresh fish. He did not succeed, however, in finding anything that would justify him in connecting the consumption of fish in any way with leprosy.

In a letter to the London *Times* several months ago, Dr. Hutchinson advanced what he considered a new and convincing substantiation of his theory of the connection between fish-eating and leprosy. He said that since the Reformation leprosy has disappeared from England. The reason for this disappearance is, according to his views, that before the Reformation the English people were bound by the precept of abstinence from flesh meat on many days in the year, altogether nearly one hundred in all, and as a consequence were much more likely to contract the disease because they were compelled to eat fish. When the obligation of this precept of abstinence was no longer binding then fish-eating went out of practice and leprosy disappeared.

There are two defects in this argument. One is that leprosy had already almost completely disappeared from England at the beginning of the sixteenth century, while the English Reformation did not occur until near the middle of that century. The other defect is that leprosy equally disappeared during the fifteenth century from every other country in Europe, as well as England, though most of the countries continued faithfully to observe the precept with regard to abstinence just as in the centuries before.

At a leprosy conference, held in London last year, the whole subject of the etiology of leprosy,

direct and indirect, was thoroughly discussed once more. Dr. Jonathan Hutchinson's fish theory received just as little attention as it did at the International Conference in Berlin six years ago. Sir Patrick Manson, who is considered one of the best English authorities on the diseases of the East, for his practical advances in which he was knighted not long since, scouted the idea of the consumption of fish having anything to do with the spread of leprosy. One Anglo-Indian physician brought with him to the conference the history sheets of over 100 cases of leprosy in patients who, owing to their religious principles, had never eaten fish, but had lived exclusively on rice. A physician from the island of Ceylon reported that leprosy existed only at a few points along the coast, though the inhabitants of the island lived almost universally on fish. When this food material reached the interior, owing to faulty methods of curing, it was not infrequently in a state of such poor preservation that it would exactly suit the requirements of Dr. Hutchinson's theory for the production of leprosy. Leprosy, however, is absolutely unknown in the interior of the island. On the other hand it has been shown that on the island of Madagascar, where, in the interior, many of the inhabitants live exclusively on rice, leprosy is not only not uncommon, but lepers are very frequent and require to be specially cared for by the missionaries.

In spite of every discouragement and the complete disagreement from his opinion of every prominent authority on leprosy, Dr. Jonathan Hutchinson continues to cling to the etiology of leprosy, which he formulated now nearly a quarter of a century ago. His letter to the London *Times*, making a religious matter of it, brought his ideas for the first time prominently before the public. His theory has never been given any prominence in medical literature. We shall, however, presumably have further revivals of it. Let us hope that physicians at least, will not give any credence to this bit of theory, which is absolutely unsupported by observation of any kind, formulated out of the whole cloth of theoretic consideration. Virchow's denunciation of it in 1897, as a medical doctrine likely to hinder the development of medical knowledge of leprosy by occupying observers' minds with investigations that he was sure would bear no fruit (he surely was in a position to judge, since his first article on leprosy was written nearly fifty years before he opened the discussion at Berlin), shows what the true basis of medical opinion with regard to it must be.

CYSTIN.

Through the interesting researches of Mörner and Embden it has been conclusively established that the sulphur of the albuminous molecule is present largely, if not exclusively, in the form of a cystin complex, and can be obtained as such on hydrolysis with boiling mineral acids. The possibility was thus furnished of establishing the chemical constitution of cystin, and a basis created for profitable investigations into the sulphur metabolism of the body. Before this, researches in this direction were rendered extremely difficult through lack of material, as the urine, *i.e.*, concretions obtained from cystinuric individuals, represented the only source of supply. At the present time it is a very simple matter to prepare as much cystin as may be required for an investigation from horn shavings, or, still better, from human hair.

The immediate result of the investigations of Mörner and Embden was the establishment of the structural formula of cystin, by Friedmann. Baumann had previously regarded cystin as a methyl-glyoxylic acid derivative and as related to the mercapturic acids. This view Friedmann has disproven and he has shown conclusively that the cystin derived from albumins is the disulphide of an α-amido-β-thiolactic acid; in other words, it is an α-diamido-β-dithiodilactic acid. The synthetic production of the substance which Erlenmeyer has quite recently accomplished has borne out the correctness of Friedmann's reasoning. This fact established, Friedmann could show that an oxidation cystin can be converted to cysteinic acid; which apparently represents the sulpho-acid of cystein; this in turn yields taurin through loss of carbon dioxide. The long-thought-of connection between cystin and taurin was thus established and the probable antecedent and source of the taurin ascertained.

Long ago Kunkel and Spiro had shown that an increase of the ingested albumin to eight times the usual quantity only led to an increase of double the amount of normal sulphur in the bile. These experiments were made on dogs provided with biliary fistulæ, but led to no definite conclusion. Quite recently v. Bergmann resumed these investigations, but substituted cystin for the increasing amount of sulphur in the food, the diet remaining constant. The results were most interesting. It was ascertained that the administration of cystin did not lead to an increased elimination of sulphur in the bile. If, however, cholalic acid was simultaneously administered the

sulphur output was at once increased. As the sulphur in the bile is only present in the form of taurocholic acid the conclusion is justifiable that cystin is normally transformed to taurin and eliminated as such, providing that a sufficient quantity of cholalic acid is available. Another source of taurin is at present not recognized.

The question that then arose had reference to the fate of the administered cystin, in cases in which cholalic acid was not given simultaneously. To this end Blum administered cystin to dogs in various ways. As a result it could be shown that the administration of cystin by the mouth or subcutaneously did not lead to cystinuria, even when very large amounts were given. Its intravenous injection, on the other hand, led to a certain grade of cystinuria, unless the cystin was introduced into a mesenteric vein, in which case no cystin could be demonstrated in the urine. This fact finds its logical explanation in v. Bergmann's demonstration of the transformation of cystin to taurin. As the ability of the organism to eliminate taurin in the bile is limited by the amount of cholalic acid which is available at the time, we may assume that in the event of an increased production of cystin the normal organism will oxidize a certain amount of the taurin to sulphuric acid. As a matter of fact Blum found no increase of the lead blackening sulphur of the urine, when moderate quantities of cystin had been given.

These experiments throw light upon the interesting metabolic anomaly which is occasionally observed in the human being, and which manifests itself in the appearance of cystin in the urine. Various possibilities suggest themselves as probable explanations. That the anomaly depends upon an unusually intense hydrolysis of the ingested albumins in the gastro-intestinal canal, and a flooding of the circulation with cystin that has been absorbed, can probably be eliminated on the basis of Blum's feeding experiments. For an unusual degree of protein destruction in the tissues with the simultaneous liberation of unusually large amounts of cystin there is likewise no basis. We are consequently forced to the conclusion that the cause of the cystinuria must be sought either in an impeded transformation of the cystin to taurin or in the fact that a sufficient quantity of cholalic acid is not available for its elimination as taurocholic acid. Experiments on cystinuric individuals in this direction will not unlikely yield interesting results and may be anticipated in the near future.

PHILLIPS AND COMPANY.

THAT love is not always the fulfilling of the law seems lately to have been exemplified by Chief O'Neal, at Chicago. For he has raided the "Climax Marriage Club," of 1418 LaSalle Avenue, and ruthlessly arrested A. W. Phillips and six "young lady clerks." These, with the wife of the proprietor, who escaped, seem to have been carrying on a most profitable business in the sale of philters and potions, and as ministers of love, and feeders of its sacred flame. The police had, it appears, been watching the place for some months, but the time seems now to have arrived when the best-laid schemes of "Doc Phillips" have gone a-gley.

Numberless letters from all parts of the country were seized, the signatures of which—many of them from well-known people—only go to show, that fools' names, like their faces, may bring their owners into trouble, even when seen in private places. Love may be blind, but jurors are not, and though these signers of the declaration of independence of thought and action, may get nothing worse, they are likely at least to lend their names to the rude annals of the police court. There are, moreover, some very germinant seeds of scandal, scattered like plums, here and there in the correspondence, which, under the forcing process of blackmail, might produce a very rank crop of ill-smelling weeds. The wife, and presumptive partner of the proprietor, too, has not been captured, while the six little maids have been released. So that the securities of the patrons of the club can hardly be classed as "listed," and most certainly not as "preferred."

The principal source of revenue to the firm seems to have been the dispensing of drugs and nostrums that are unknown, in their present combination, to the United States Pharmacopœia, a large quantity of which were captured on the premises. Of these the "Silver Pill" appears to have been the "leader" in their trade-producing efforts, and for it they claim, in their circular, all the virtues that have been hitherto ascribed to the classic Pink Pills for Pale People and the much-vaunted Mormon Wafer. They were seductively put up, in attractive-looking boxes, and were sold at the remarkably low price of twenty-five cents per box—five for a dollar; probably on the principle of large sales and small profits. For the product of the illicit still of the medical world is apt to be much more expensive to the victim than the professional services of the regular practitioner. They were made fresh every hour, as

they claimed to meet the demand, and also perhaps to correspond to the birth-rate of the purchasers.

Each and every original package contained a printed slip of directions, which were explicit, and as easy to understand as the diagnosis of the ills for which they were to be given. "One pill every half hour after eating meals, and also take one every half hour when with the lady of your heart. They tone the nerves. Without them no one can be successful in courtship or business."

Can anything be more simple? So, if this be true, why should not suffering humanity, on whom the cloud of relaxation has fallen, take refuge in the silver lining of this bolus? Why not a silver pill? In fact, as Grosvenor sang, "Why not a silver churn?" All things come to those who wait, and what could be more charming than sitting with the "lady of your heart," with one hand in durance vile, grasping the pellet, while the fingers of the other twine about the glass of water with which to wash it down? Meanwhile the adored one lingers with the opened watch before her, waiting to call "time," and ready to administer the half hourly pill. Pills that are to "tone" the recalcitrant nerves, and "slowly warm the creeping life-blood to the last." Pills that are to render the laggard in love, and the dastard in war, men of action and affairs! What matters time, if business is increasing and every moment only serves to hasten the maturity of the coupons as the bonds increase and multiply?

It is love that makes the world go round, and if Phillips and Company, in connection with their six little maidens, can manufacture and dispense a sufficient number of silver certificates to increase the number of its revolutions—even at the ratio of two to one—this physic certainly deserves a better fate than to be thrown to the dogs of a confiscating municipality.

Great as the advantages of this rejuvenator are, and vast as the blessings may be, that flow from its constant use, yet this modern philanthropist goes one step farther, and states in a Biblical manner—as if keeping his best wine until the last—"that they are guaranteed to cure *bashfulness* in three months or less."

It is here that we draw the line. We acknowledge that it is not always just to require the testimony of our own special senses to confirm the statements of another. We admit that many inhabitants of the inland States do not believe in the existence of the sea-serpent, simply because they have not themselves seen it; while it is impossible to induce the majority of seafaring men to realize that there is any peculiar knowledge derived from previous experience that would prove useful in the handling of horseflesh. Therefore we do not say that bashfulness does not exist in Chicago, but we do believe, that if a person has arrived at adult age in the Western Metropolis, and has preserved any traces of it, his case has become so chronic, that it is far beyond help from any mere drug or course of treatment. Like the furunculous diathesis of Job, it has come to stay and has become bone of his bone, and flesh of his flesh.

Moreover, bashfulness is an attribute of callow, unfledged adolescence—the bloom of youth that custom withers. So if this Western Mephistopheles can strip the beard and wrinkles off from Faust, we welcome him. But can he raise the dead and show us Margherita as she used to be?

> "It might have been a boyish love,
> Ah weary woman—listless lover,
> Again to feel that fierce wild thrill
> I'd give—but who can live life over?"

ECHOES AND NEWS.

NEW YORK.

West End Medical Society.—The third regular meeting for 1904 will be held at the residence of Dr. Walter Mendelson, 159 West Seventy-fourth Street (telephone, 282 Columbus), on Saturday evening, February 27, at 8:15 o'clock. The paper of the evening will be by Dr. Henry L. Shively. Subject: "A Clinical Study of Myoidema, with Especial Reference to its Occurrence in Pulmonary Tuberculosis."

Surgical Outfit for Fire Companies.—Twenty-five leather cases, containing emergency medicines and surgical instruments, are to be furnished to every company in the Fire Department of New York City. With these cases always available, any one with surgical knowledge present at a fire may treat wounds on the spot. It is possible, too, that instruction in "first aid to the injured" will soon be given to all firemen.

Typhoid at Watertown, N. Y.—A preliminary report on the typhoid fever epidemic at Watertown, where there have been 300 cases of the disease since January 1, has been made to the State Health Department by Prof. O. H. Landreth, consulting engineer of the department, who is making an investigation of the situation. The epidemic, according to advices received by the department, is still raging with unabated vigor, five or six new cases being reported daily. Prof. Landreth, in his report, says that the city's water supply is apparently the most probable cause. The source of supply is the Black River. There are numerous villages located on the stream above Watertown. Above the city and on the watershed of the river a number of typhoid cases have been located, and Prof. Landreth believes that an accumulation of polluting matter on the watershed was washed down into the river during a thaw in the latter part of December. Watertown is constructing a rapid sand filtration plant, but it will be several months before any relief from this plant can come,

and meantime the people have been urged to boil thoroughly all of the water used for drinking purposes.

Seaside Hospital for Tuberculous Children.—Tuberculosis is to be attacked in a new quarter by the New York Association for Improving the Condition of the Poor, 105 East Twenty-second street, which has appropriated $15,000 for the maintenance at the seaside of children less than fifteen years old, who suffer from non-pulmonary forms of the disease. This will be the first seaside hospital exclusively for tuberculous children in America, although in France such cases are, as a rule, treated at the seaside, it being generally held by experts that the ocean air is the best for such patients whose lungs are unaffected. There are said to be nearly 4,000 children in the New York tenements suffering from scrofula, tuberculous joints, and lymph lobes. Several hospital beds have been provided for them, and the New York Orthopedic Hospital and the Society for the Ruptured and Crippled give special treatment, but the new hospital appears to be a much needed institution in the same field.

Volunteer Surgeons for Japan.—Surgeons and nurses are appearing at the Japanese Consulate every day to volunteer their services, and while they are not needed now, Consul General Uchida takes their names and addresses, which he forwards to the Japanese Minister at Washington. Dr. Anita Newcomb McGee asked Mr. Uchida to be allowed to go to Japan with a corps of trained nurses and attendants for the Japanese hospital service, either in the field or wherever they could be used to advantage. The Consul General, after consulting with the Japanese Minister, accepted the offer, and the volunteers will be sent as soon as they are ready. The war fund of $5,000,000 which is being raised by the Japanese residents of this country is constantly growing, and already almost $100,000 has been subscribed, with promises of more than twice as much more. Consul General Uchida has received two checks, one for $10,000 and the other for $5,000, both of which were sent by Japanese merchants of this city. Besides contributions of money, offers are daily made to the Consul of equipment for the Japanese Red Cross Society. One American firm has sent to the Consul General asking him to accept five large field ambulances, to be shipped at the donor's expense. Various firms of manufacturers of supplies and drugs have offered large quantities of their goods.

Opening of the New Mount Sinai Hospital.—Preparatory to the removal of the hospital to its new buildings at Fifth avenue and One Hundredth street, the admission of patients has been discontinued at the old hospital. A reception will be held at the new buildings on the afternoon and evening of March 15 and 16. Patients will be admitted to all departments Monday, March 21.

Annual Reunion and Dinner.—The seventh annual reunion and dinner of the Associated Alumni of Mount Sinai Hospital was held at the Freundschaft Society Building, Park avenue and Seventy-second street on Wednesday, February 17. Dr. G. L. Brodhead presided. The officers elected for the ensuing year are as follows: Dr. Edwin Sternberger, President; Dr. Charles Goodman, Vice-President; Dr. Leo B. Meyer, Secretary, and Dr. Eugene H. Eising, Treasurer.

Exoneration of Bellevue.—At a Coroner's inquiry into the death of Adolph Drucker, whose friends claimed that he had been beaten and drugged in Bellevue Hospital, the attendants were relieved from all blame. Coroner Jackson, in charging the jury, said that he thought that Drucker had died of alcoholic meningitis. "I examined the body," said the Coroner, "and found no marks of violence. Two patients in the hospital after Drucker's death said that he had been awfully maltreated, and that his death was due to this treatment. The men were afterward arrested on I-know-not-what charge, and what they say, therefore, must be taken with a grain of salt. I looked into the charges against the hospital, and found that Drucker had been treated as well and kindly as any other patient. Of course, he may have died of drugs—his life was heavily insured—but that could only be ascertained by an autopsy, and his body was removed to Westchester county before this could be performed. It can only be exhumed by a request of the District Attorney to the Supreme Court. Or Drucker may have had a fall and fractured his skull." The jurors, without leaving their seats, decided that Drucker came to his death through causes unknown, and exonerated the hospital from all blame.

The Medical Society of the County of New York.—At the annual meeting of the Medical Society of the State of New York, held in Albany on January 26, 1904, the following resolutions were unanimously adopted:

Resolved, That the Report of the Joint Committee of Conference be accepted and that the proposed Agreement for the Consolidation of the Medical Society of the State of New York and The New York State Medical Association be and the same is hereby approved, and the President of the Society is hereby authorized and directed to execute the same in the name and behalf of the Society, and the Secretary is hereby authorized and directed to affix the corporate seal thereto; and be it further

Resolved, That the Committee of the Society heretofore appointed for the purpose of bringing about the consolidation, namely, Dr. Henry L. Elsner, Dr. A. Jacobi, Dr. A. Vander Veer, Dr. George Ryerson Fowler and Dr. Frank Van Fleet, be and they are hereby continued as such Committee, with full power and authority to do whatever may be necessary to carry the Agreement into effect.

Action on the adoption of the enclosed report, together with the proposal of resolutions ratifying the action of the State Society, will be taken at the stated meeting of this Society, to be held Monday, Feburary 29th, 1904, at 8:15 P.M. Ratification of the action of the State Society by each County Society is requisite for the completion of the consolidation.

The Manhattan Dermatological Society.—Regular monthly meeting held Friday evening, Feb. 5, 1904, at the residence of Dr. E. L. Cocks, with Dr. I. P. Oberndorfer presiding.

Dr. B. F. Ochs showed a case of congenital venous angioma, occupying the right side of face and forehead; the child is now fourteen months old. At birth the nevus was a deep blue, but the mother states that the color is fading gradually, so that at present it is of a pale sky-blue color, the latter best observed in daylight. The upper half of nevus is covered with fine hairs. Dr. Ochs also showed his case of chronic onychia (presented at the January meeting). Microscopical examinations of scrapings and nail sections failed to show the favus, or tricophyton mycelia or spores. Dr. Gottheil termed the condition onycholysis, probably of non-parasitic origin. Dr. Whitehouse said present appearances did not suggest favus or ringworm. Psoriasis he could likewise exclude, owing to the degree of nail preservation after nine years' duration. He would look for some other origin not necessarily parasitic.

Dr. J. Sobel presented a case of acne indurata, showing result of treatment; of two years' duration and involving the face, chest and back. The usual hygienic and dietetic regulations advocated, cod-liver oil and pill. calcium sulphid internally; and locally lotio alba, unguentum of salicylic acid, sulphur and resorcin and the curette. Large acne nodules were treated with injections of hydrogen peroxid; the latter had a marked effect in reducing the large indurated papules. Dr. Cocks likewise used the curette and saw good results following the use of hydrogen peroxid. Dr. Gottheil would not be too enthusiastic concerning the value of calc. sulphid given internally. He also uses the curette and saw no scarring following. Dr. Bleiman stated treatment should be directed toward keeping down the hypersecretion of fat, which was the chief factor in producing sebaceous plugs and acne papules. Locally, sulphur, resorcin and naphthol ointments and the use of the curette.

Dr. E. L. Cocks presented two cases: (*a*) Case of hypospadias in a boy of ten years; the question of immediate or remote operation was discussed. (*b*) Case of squamous palmar syphilide. A young man, a fireman, twenty-eight years old, gave history of infection some years ago; the secondary symptoms and signs cleared up in due time, but a lesion of both palms is obstinately persistent and extremely rebellious to treatment. Both palms show induration sharply defined, smooth and glistening; no fissures. Dr. Gottheil suggested the injection method in these cases, claiming better and more rapid results. Dr. Sobel stated, the absence of fissures, the presence of marked induration and the sharply defined margins favored the diagnosis of syphilis. Dr. Whitehouse said these cases are always difficult to treat and prove rebellious to any form of treatment; he suggested local treatment was of prime importance. Dr. Oberndorfer also said he would pay more attention to local methods; internally antispecific treatment heroically administered.

Dr. W. S. Gottheil presented the following cases: (*a*) Acne cornea (shown at January meeting). New lesions were observed on the face and three or four more new ones developed on the hands. (*b*) Bromoderma; a papulopustular eruption on abdomen and thighs and smaller papules on the face following the administration of bromides. (*c*) Dermatitis herpetiformis; a young girl of fourteen years gave a history of repeated attacks of papulovesicular lesions on the face and body; the present attack is confined to the abdomen, groin and thigh, and consists of papules, vesicles and pustules, singly and in groups. The patient is never absolutely free from one of these outbreaks. Drs. Ochs, Sobel and Cocks agree in the diagnosis; history of recurrence was strongly suggestive of the condition. Dr. Whitehouse likewise favored this diagnosis, owing to the history, multiformity of lesions and the intense burning and itching. Dr. Abrahams would call it vesiculopustular eczema. Dr. Oberndorfer observed pediculi on the head; he thought the body lesions may have had some such connection and if so, he looked upon it as an irritative pustular eczema. Dr. Gottheil stated that an impetigo or a pustular eczema may resemble a dermatitis herpetiformis, but there was no such history of recurrence. (*d*) A woman, showing large crescentic patches, distinctly erythematous, well-defined margins, the latter slightly scaly and the centers pale; the clearing centers showing slight pigmentation. Lesions of several months' duration. Drs. Abrahams and Oberndorfer think it may be a syphilide. Dr. Sobel termed it mycotic eczema. Drs. Cocks and Bleiman recognized a resemblance to eczema marginatum.

Dr. Holding presents for Dr. Pisko the following cases, showing results obtained under X-ray treatment: (*a*) Epithelioma on lobe of right ear; was given three five-minute exposures every fifth day, then twice a week for ten minutes; a slight dermatitis developed, and treatment was temporarily suspended. (*b*) Congenital nevus pilarus pigmentosus on forehead; given eighteen treatments; the only result so far observed was falling out of the hair. (*c*) Acne rosacea; was under treatment for two years with ointments and other local applications; since October 12, 1903, has had thirteen X-ray exposures and some improvement is noticed. The therapeutic value of the X-ray in dermatology was discussed.

Hours for Bakers.—A decision was handed down in January by the New York Court of Appeals sustaining the law prohibiting the employment of bakers for more than sixty hours per week or more than ten hours per day, says *Charities*. Especial significance attaches to the ground taken, the statute being sustained not as a labor measure but as an exercise of police power for the protection of public health. The law had been attacked as unconstitutional in its interference with the right of contract. Three judges apparently held to the latter view and the position of the majority was reflected in an opinion written by Judge Parker. To quote in brief: "That the public are generally interested in having the bakeries and confectioners' establishments cleanly and wholesome in this day of appreciation of and apprehension on account of microbes, which cause disease and death, is beyond question. It can be safely said that the families of to-day are more dependent upon the bakers for the necessaries of life than any other service of supply. That being so, it is within the police power of the legislature to so regulate the conduct of that business as to best promote and protect the health of the people. Is it possible that any one can question that the sole purpose of the legislature is the safeguarding of the public health when it provides for floor, ceiling, and sidewalls, such material as that they may be readily cleansed; compels the keeping of flour and meal-food products in dry and airy rooms, so arranges that the storing facilities can be readily cleaned and prohibits the keeping of domestic animals within such rooms? It is reasonable to assume from the statute as a whole that the legislature had in mind that the health and the cleanliness of health workers were of the utmost importance; that a man is more likely to be careful and cleanly when well and not over-worked than when exhausted by fatigue, which makes for uncleanliness and slovenly habits and tends to dirt and disease. If there is opportunity—and who can doubt it?—for this view, then the legislature had the power to enact as it did and the courts are bound to sustain its action as justified by the police power. I hear but one argument advanced for the purpose of convincing the mind that the object of this statute is not to protect the interest of the public, and that argument is that it is to be found in the labor law. Therefore, it is said, it is a labor law and not a health law. The question presented by this argument is: Does the label or the body of the statute prevail? Does calling a statute names deprive it of its intended and real character? If a statute relating to banking happens, in the course of qualification, to be incorporated as an article in the general corporation law, does it cease to operate upon the banking interest? I submit without argument that the ques-

tions answer themselves. Medical authorities without number classify workers and bakers in confectioners' establishments with porters, stone cutters, and file grinders and other workers whose occupation necessitates the inhalation of dust particles and hence predisposes its members to consumption. Medical opinion and statistics bearing upon that subject, standing alone, fully justify the section under review as one to protect the health of employees in such establishments, and it is the duty of this court to assume that the section was framed not only in the light of but with a full appreciation of the force of the medical authority bearing upon this subject—authority which reasonably challenges the attention of the philanthropist."

PHILADELPHIA.

Increase in Pneumonia and Typhoid.—Of the 605 deaths reported for the week ending February 20, 125 were due to pneumonia. Officials of the Bureau of Health, who regard the disease as contagious, are considering the advisability of issuing a circular calling attention to precautions against the disease. During the week there were 142 new cases of typhoid fever, the largest number for one week since April, 1903.

Vaccine Corps Paid.—The thirty-six physicians comprising the vaccine corps of the Bureau of Health, who were succeeded by the recently appointed Medical Inspectors, received their pay on Monday. The pay aggregated $39,847. Between July 10 and December 31, 1903, they vaccinated 207,000 persons. Reports indicate that 75 per cent. of the vaccinations were successful.

To Regulate Meat Inspection.—Governor Pennypacker has recently appointed a commission to formulate rules for the suppression of tuberculous cattle in the State and also provide for a uniform system of meat inspection. This will be made possible by deciding upon a determining point when meat may be dangerous for use and hence its sale prohibited. At present no uniformity exists, although the meat inspection service in this city has lately been much improved. The report of the commission will be made to the State Live Stock Sanitary Board, which will promulgate the rules among the meat inspectors throughout the State. The Secretary of the Board states that about 3 per cent. of the cows from herds about Philadelphia are tuberculous.

Address by Dr. Northrup.—Dr. W. P. Northrup, of New York City, was the guest of honor at the annual dinner of the J. C. Wilson Medical Society of the Jefferson Medical College, February 19. Previous to the dinner Dr. Northrup addressed the students of the college, his subject being "Joseph O'Dwyer, M.D.; his Methods of Work on Intubation; The Measure of his Success; The Interest of both to Young Graduates."

Additions for Methodist Hospital.—Additions costing $300,000 are projected for the Methodist Episcopal Hospital during the present year. Among the new buildings will be a dispensary, nurses' home, power house, and kitchen. A new ward for charity patients is also contemplated.

Sites for Health Camps.—In a recent address before the American Philosophical Society on the prospects of forestry in Pennsylvania, Commissioner J. T. Rothrock emphasized the need for establishing sanatoria and camps for the treatment of consumptives. That Pennsylvania is equipped for this purpose was proven by the statement that the State owns some 600,000 acres of land better adapted to forestry than agriculture, having been purchased at prices varying from 7 cents to $3.85 an acre. This land is distributed through twenty counties and offers many excellent sites for camps.

New Medical Magazine.—The first number of *The Therapeutic Review*, a monthly magazine, to be issued under the editorial management of Dr. Horatio C. Wood, Jr., has made its appearance. It is a well-printed journal of 40 pages and is to be published at $1.00 per year. The purpose of the new publication can best be given in the following extract from the editorial announcement: "Our purpose is to offer a journal which will not only be given up exclusively to therapeutics, but which shall give as complete a summary as possible of all that is being done, throughout the world, in the treatment of disease. We intend to present every month a copious résumé of the important therapeutical literature of the world in a concise but readable form."

Vital Statistics Modernized.—The International Classification of deaths is now being used in filing the vital statistics of Philadelphia. This system was put in force on January 1, thus making it possible to compare the statistics of this city with those of other large cities of the world. It is stated that the statistics of the past four years will be practically useless for the next census, owing to the failure to adopt during that time the classification mentioned.

CHICAGO.

Presentation of Loving Cup to Dr. Quine.—The Senior Class of the Medical Department of the University of Illinois (College of Physicians and Surgeons), at its annual reception given Feb. 9, in honor of Dr. Wm. E. Quine, the Dean, presented him with a silver loving cup, as this marked his fifty-seventh birthday anniversary, his thirty-fourth anniversary as a medical teacher, and his twenty-first anniversary as a member of the Faculty of the College.

Suicide by Carbolic Acid.—The use of carbolic acid is not a passing fad among suicides. It is an established custom, due primarily to the fact that the legitimate uses of the acid are so numerous that it is easy for almost any person to give a druggist a plausible reason for the purchase. Death by carbolic acid is death by torture, but the would-be suicide who is in real earnest does not stop to bother himself about a few moments or a few hours of agony. The Retail Druggists' Association favors the passage of a City Ordinance regulating the sale of this poison, and the Council will do well to give the proposal careful consideration. It is said that the placing of restrictions upon the free sale of concentrated solutions will do much good, with little inconvenience to the public, inasmuch as the more diluted solutions are perfectly satisfactory for most legitimate uses. The concentrated solutions are fatal, but the weaker solutions are much less dangerous. There is reason to believe that a properly framed ordinance would reduce the number of suicides.

Mortality of Diphtheria.—Between Oct. 5, 1895, the date of the first case treated, and Dec. 31, 1903, the antitoxin administrators of the City Health Department have treated 7,435 cases of bacterially verified diphtheria, of which number 479 died, a mortality rate of 6.44 per cent. The average mortality without antitoxin still remains at about 35 per cent.

Influenza.—The weekly Bulletin of Health has this to say with reference to influenza: "When a person is ill with influenza, it is better not to visit him or, if a visit is imperative, it is advisable to avoid unnecessary personal contact. After the interview, the hands should be thoroughly washed in an antiseptic solution and the

outer garments should be aired by being exposed to a current of fresh air, or, better still, to the direct rays of the sun. The condition of the general health should be maintained by plenty of outdoor exercise, by good food, and the avoidance of indulgence in alcohol. At the onset of the initial symptoms, the patient should remain in bed and should at once obtain medical advice. No reliance should be placed on popular remedies, for the complications are so grave that the best possible treatment is required. Do not fool with the grip, but go to bed and send for your doctor."

Cryoscopy.—Dr. Theodore Ticken read a paper on this very interesting subject before a recent meeting of the Chicago Medical Society, in which he reviewed in detail the evolution of cryoscopy and the literature up to the present time. He sums up the conclusions of other workers along similar lines and compares the results with those he obtained. During the past eighteen months he has examined the blood and urine in 330 cases, making in all over 500 estimations of the freezing points. He finds that the results obtained by Koranyi, Kümmel, Caspar and Richter, Rumpel, Tinker, and others, are correct, and that the slight differences may be accounted for by errors in technique. He used the Beckman apparatus for both the blood and urine, and gives the normal freezing point of blood at 0.56° C. below zero, as found by previous workers. The urine, as collected for the usual twenty-four-hour specimen, freezes at 1.46° C. in the average normal individual, but the normal limits vary from .98 to 2.56°. He finds that the freezing point of the mixed urine does not give us much information as to the functional activity of the kidneys, and that a catheterized specimen from each kidney is necessary to be of help to us. The freezing point of the blood is nearly constant (0.56°), and the normal variations are much less than in the urine—.55 to .57° C. being usually given, but we must not be misled by the variations occurring in the freezing point of this fluid, as it, too, is subject to outside influences. He thinks that cryoscopy will be of value to us in many cases, especially when used in connection with the other methods of diagnosis, as ureteral catheterization, the phloridzin test, and careful chemical and microscopical examination.

Physicians' Club of Chicago.—At a meeting, held Feb. 16, Graft was the subject for discussion. Mr. Clarence Darrow, the eminent lawyer, defined graft as "the effort of any human being to take from society or from another human being or animal more than he really gives to society in return." Great grafts are done inside the law. The wise grafter never undertakes to get something contrary to the law. He undertakes to fix the law so that he can get something according to the law. It is more profitable and safer. The cheap grafter, who does not understand his business, and does things by retail instead of wholesale, who has little voice in making or administering laws, undertakes to graft contrary to the law. Great capitalists graft inside the law. It is easier for them to choose their agents and their tools to fix the law the way they want it, and they get what they want without running the slightest possible risk. The grafter is a product of his environment. There is considerable grafting in the legal profession. Indirectly, that is what the legal profession is for, said Mr. Darrow. It is a business chosen by certain men because they think by pursuing it they can get more than they can by pursuing any other business they are familiar with. He said it speaks well for the medical profession that there are few doctors in Congress or in legislatures. Dr. Harold N. Moyer discussed medical graft. He said he has made inquiries from a large number of members of the profession, and has been unable to find anybody who knew anybody who grafted, or knew anything about graft in the medical profession. He has found one or two men who said they knew of somebody else in the profession grafting, but upon running the inquiry down, he found it was false, and he received the word of the man himself to authenticate it. Dr. J. Clarence Webster asked about the Chicago surgeons in high places, who contrive with country practitioners to send them patients. Such men existed, and one could put his fingers on them. It is not necessity that stimulates these men to carry out this nefarious practise, which is not only detrimental to their self-respect, but a temptation to weak brothers with whom they come in contact. Within the last month he saw a circular signed by a surgeon who is connected with one of the well-known hospitals of Chicago. This circular was sent around to various physicians in Illinois and neighboring States, offering bribes for patients sent to him. He knows of the same thing having been done by a professor in one of the best medical schools in a neighboring State. These men are not starving. They do not require to do that business, but they do it. What is the explanation? Not necessity, but deviltry—degeneration, and as long as men in high places do this, he said it is absolutely folly to expect the struggling practitioners, who are in the position of being bribed, not to be bribed. Dr. Palmer Findley said the burden of medical graft falls upon the young physician and surgeon. He does not think any surgeon has to graft for bread and butter. Going out into a neighboring town two or three months ago to operate on a poor farmer's wife for a small fee, a physician, after the operation, showed him a card from an agent of a surgeon in Chicago, offering fifty per cent. commissions. This practitioner also showed him a letter from a local surgeon who solicited cases for twenty-five per cent. commission. Another case was mentioned of a physician in the same town who had gone personally to the attending physician in a case in behalf of a Chicago surgeon, and he had openly declared time and again that he was receiving a division of fees. The remedy should be the one President Roosevelt suggested for trusts—publicity—publicity through organizations, so that it will be impossible for men who are professors in leading medical schools and officers in medical societies to divide fees or give commissions. Mr. Wm. H. McSurely defined a grafter as one who allies or attaches himself to some outside interest, some interest apart from the main motive of his life, for the purpose of getting from that outside interest something that will be beneficial to the main motive of his life. He then spoke of lawyers and doctors as church grafters, the society grafters, etc. Dr. G. Frank Lydston spoke of the physician in politics and public affairs, saying that the doctor who devotes a portion of the years of his life to politics and to the public service is forever damned in the eyes of both the public and the medical profession. The reverse is true of the lawyer. In politics the lawyer attracts attention to himself. He said there were very few lawyers who rendered services in the interest of the public without salary, although this was frequently done by physicians.

CANADA.

The Prohibition of Alcohol in Medicine.—An effort is to be made by the Ontario Council of the Royal Templars to direct legislation to prohibit the sale of such patent medicines as contain alcohol in excess of

the quantity sufficient or absolutely necessary to preserve them. At a recent meeting of that body in Toronto, the question was again discussed in all its details and an analysis was produced of several of the well-known patent medicines which rather opened the eyes of several of the good thinking and acting people of this organization. It was abundantly proven that there was from 14 to 40 per cent. of alcohol in many of these preparations, and it was nothing more than whisky habit which caused many people to patronize these so-called cure-alls—another way of taking "morning bitters." For years the medical press has been calling attention to the fact that the virtues, if they were such, were all due to the stimulating qualities they possessed and that these were in all instances due to the alcohol in them. It is gratifying, then, that persistent and consistent agitation has brought the temperance people into line, and that they are uniting as a body in controlling the evil.

Sanitary Barber-shops for Ontario.—One of the members of the Ontario Legislature has a bill before that body seeking to amend the Medical Act, which amendment relates wholly to barber-shops. The legislation will seek to regulate and prohibit the admission to barber-shops of any person suffering from a communicable disease, will provide for the regular and efficient cleansing of the shops and instruments used, as well as the conduct of the barbers as regards personal cleanliness, and looking after the sanitary conditions of the premises. It will also seek to prohibit the employment of any one as a barber while he is suffering from any infectious, contagious or communicable disease.

A Royal Commission for the Prevention of Tuberculosis.—The Executive Committee of the Montreal League for the Prevention of Tuberculosis has appointed a Special Committee to interview the Dominion Government with the object of establishing a Royal Commission for the purpose of fighting tuberculosis. This Committee will draw up a concise scheme of the needs of the Montreal League and will approach the Provincial Legislature to ask for financial aid for the erection of a sanatorium near Montreal. At the meeting Professor Adami and Dr. A. J. Richer, who were present at the Baltimore Tuberculosis Exposition, gave an interesting account of the exhibits and demonstrations. Since June 30, 1903, the Montreal League has had 136 cases under supervision. Of this number 52 had died, six had been transported to their native land, ten were sufficiently improved to be discharged, 14 had been sent into the country, while 63 remained on the active list of the Committee. The medical inspector of the League had made 706 visits, and over 2,000 cuspidors had been contributed.

Annual Meeting of the Montreal General Hospital.—The eighty-second annual meeting of the Corporation and Board of Governors of the Montreal General Hospital was held in that city last week. According to the report the excess of expenditure in 1903 over ordinary income is $13,453 against $10,774 for the previous year. The ordinary income in 1903 was $91,763 against $87,439 in 1902. On December 31, 1903, the endowment fund amounted to $43,500, to which was added during the year $7,000. The hospital is making an endeavor to raise an endowment fund of $500,000. The total number of patients which passed through the wards in 1903 was 3,066 as against 2,878 in 1902, an increase of 188. The outdoor patients numbered in 1903 35,984 against 31,993 in 1902, an increase of 3,991. During the past year twelve nurses received their diplomas.

Marine Hospital Improvement.—The Federal Government will improve the Marine Hospital at Victoria, B. C., to the extent of $3,000.

Personals.—Lord Strathcona has contributed $20,000 to the development of the Science Department of Manitoba University at Winnipeg.

Dr. Claude W. Freeman has been appointed Medical Superintendent of the Hamilton, Ont., City Hospital.

GENERAL.

First Woman M.D.—The first woman receiving the degree of doctor of medicine in Germany was the wife of a pastor named Erxleben. She got it at the University of Halle, just 150 years ago.

Physicians' Pilgrimage to Rome.—The Society of St. Luke and Sts. Cosmos and Damien have made arrangements to visit Rome in a body shortly after Easter of the present year. These societies are composed of physicians, their patron saints having been physicians. It is understood by special arrangements with the Cardinal Secretary of State, Cardinal Merry del Val, that Pope Pius X. will receive the physicians in a special audience. They will also have the special privilege of admission to the gardens of the Vatican. The families of physicians also have the privilege of taking part in the pilgrimage. Specially cheap rates are offered on the railroads and at the hotels; for first-class transportation about $70; for second-class transportation, $58, and for third-class transportation, $48 will be the price of a return ticket from Paris to Rome. This price will also include, besides transportation, all expenses on the way, the hotel bill for six days in Rome, the expenses of carriages in Rome itself, as well as interpreters and guides, and the meals to be taken during the visits in the city. Applications to become members of the visiting party must reach the secretary, Boissarie H. Dauchez, Feron-Vrau, Rue Bayard 5, Paris, France.

Increase of Medical Corps.—Secretary Taft adopted on Feb. 18 a compromise measure providing for the increase of the medical corps of the army. Surgeon-General O'Reilly asked that the corps be increased to 20 Colonels, 20 Lieutenant-Colonels, 110 Majors and 300 Captains and Lieutenants. The General Staff reduced this in their recommendation to 12 Colonels, 18 Lieutenant-Colonels, 120 Majors and 300 Captains and Lieutenants. In reaching a conclusion Secretary Taft remarks that the argument advanced by the Surgeon-General for the larger increase was stronger than the argument against it by the General Staff. He therefore decides to recommend to Congress an increase to 16 Colonels, 24 Lieutenant-Colonels, 110 Majors and 300 Captains and Lieutenants.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

LONDON, February 6.

THE PHYSIQUE OF SCHOOL CHILDREN IN SCOTLAND—THE WAR OFFICE AND THE MEDICAL SERVICE OF THE ARMY—DRUNKENNESS IN WOMEN—A FRUITFUL MARRIAGE.

DR. ALEXANDER OGSTON, Surgeon in Ordinary to the King in Scotland and Regius Professor of Surgery in the University of Aberdeen, is a man of independent mind, who is by no means disposed to believe, with Pangloss, that all is for the best in the best of all possible world. He incurred great unpopularity among the medical officers of the British Army a few years ago by his plain speech about their shortcomings. He went to South Africa as a volunteer consulting surgeon, and the evidence which he gave before the Royal Commission on the War, based on his personal observations, was by no means pleasant reading to patriotic British-

ers, who would like to think that every department of their military service is thoroughly efficient. More recently Professor Ogston has served on a Royal Commission on Physical Training in the Schools of Scotland. The other day he took the opportunity offered by a meeting of teachers at Aberdeen to deliver his soul on the physical conditions of school children in Scotland, and on the subject of education generally in its relation to health. Like Herbert Spencer he holds that the first object of the educator must be to make the future citizen a healthy animal. In the environment in which the children of the poor live and move and have their being in our large cities this can scarcely be done; bodily defects and deformities of one kind or another are so common that mental education is, in a large proportion of school children, physically impossible. Among those not actually defective, there are many in whom disease exists in a latent form, and almost all suffer from malnutrition to a degree approaching starvation. Nearly all the witnesses examined by the Commission testified that signs of racial degeneracy could everywhere be seen among the rising generation, but a sufficient body of definite facts in proof of this impression was not forthcoming. The Commissioners therefore obtained the sanction of the Treasury to an inspection of schools which might be taken as types by medical experts. Dr. Matthew Hay, Professor of Forensic Medicine and Public Health in the University of Aberdeen, and Dr. Leith Mackenzie, Medical Inspector of the Local Government Board for Scotland, were chosen to make the inspection. The result of their investigations was to show that there was an amount of ill-health, vastly greater than had been anticipated, among young persons attending school. The following passage from their report will give an idea of the state of things: "If the ratios observed by the examiners be admitted, and it may be gathered from their reports that they did not overstate the case, there are in the Edinburgh Board schools 700 cases of unrecognized phthisis, and 458 in Aberdeen, and 1,300 cases of unrecognized heart disease of a dangerous nature in Edinburgh, and 250 in Aberdeen. Of lesser ailments there are in the Edinburgh schools 15,000 children affected with disease of the throat and 7,500 in Aberdeen, and 12,000 cases of ear disease in Edinburgh, and 2,250 in Aberdeen. Of ailing children in the Edinburgh schools there is, even if only half the number of those reported be computed, a total of 10,500, and in Aberdeen 5,708, all of whom are in need of medical attention. Perhaps the most striking evidence that was laid before us of the absolute necessity of a better medical supervision of school children is the statement contained in the Edinburgh report, that out of the total of 299 male children examined in Edinburgh, 259 showed some defect, however remediable, of the ears and throat, and that out of 298 female children examined, 294 showed the same condition of disease." The reports of Drs. Hay and Mackenzie contain other details revealing a condition of matters described by Professor Ogston as "absolutely dreadful." They are, however, beyond denial, and are corroborated wherever similar investigations have been made. For example, quite recently Mr. Cheatle, a well-known London aurist, in examining the ears of 1,000 English school children between the ages of three and sixteen years, found only 432 of them normal; the remaining 568 had disease of the ears. Professor Ogston laid great stress on the mental overpressure to which many children are subjected by the educational methods of the present day. Not only school children, but university students are driven so hard that they either break down under the strain or take longer than the appointed time to complete their studies. At the root of the school difficulty lies malnutrition. It is not by any means only among the poorer classes that this exists. In nearly all schools, and particularly in girls' schools, the food is insufficient in quantity and improper in quality. In connection with this matter Professor Ogston had a good deal to say about "sugar gluttony," which he described as a growing evil in towns. "It may constantly be observed," he said, "that a free indulgence in the mastication of sweetstuff is immediately followed by toothache, due to the production of a ring of disease round the necks of healthy teeth, which are corroded as if by an acid, and the habit leads to the aggravation of already existing caries of the teeth." In some children the sugar habit becomes an infatuation resembling the craving for drink. The Professor ventured on a prophecy that future observers will place sugar gluttony on a level with alcohol as a cause of deterioration in individuals and races. He insisted on the necessity of a thorough medical examination of all children on their first entrance upon school life, all through which they should be kept under skilled observation. Properly trained female inspectors would be an invaluable help. With regard to physical training, Professor Ogston said military drill, though it produces marvelous results in knocking an amorphous recruit into a shapely soldier, is physiologically unfitted for the tender bodies and minds of little children and girls. The Swedish (Ling) system of exercises, practised day after day with no intellectual apprehension of its mechanism, becomes inexpressibly wearisome to children. Moreover, it demands a standard of knowledge in the teacher which it seems nearly hopeless to expect. Even Sweden is beginning to find that its system, though perfect in theory, requires to be considerably modified before it can be used beneficially in schools. Whatever system is eventually introduced as a standard in schools, it cannot, in the Professor's opinion, be anything more than a tentative scheme, to be further perfected in the light of accumulating experience. The recreative element must never be lost sight of; hence no system of training can advantageously replace organized school games.

The War Office, which has become a synonym for red tape, obstructiveness and general inefficiency, is to be reconstituted, root and branch. Among the drastic reforms recommended there is one directly affecting the Medical Service. It is not long since a great victory was won for the medical officers of the army by the position of greater dignity and authority given to their chief. The Director-General was made a member of the Army Board, and as such was on an equality with other heads of departments. The matter was more than one of mere rank; the greater official position made it impossible for the military authorities to disregard the recommendations and demands of the Director-General. Under the new dispensation the Army is to be ruled by a Council, with the composition of which I need not trouble your readers; it is enough to say that there appears to be no place in it for a representative of the Medical Service. The attention of Lord Esher, the chairman of the Reconstitution Committee, has been called to this omission, and he has replied, in the true Delphic style of officialdom, that the position of the medical service is receiving the serious attention of himself and his colleagues. The question is indeed one of sufficient importance to call for their most serious attention, for the experience of the South African, as of every other, war, has conclusively proved that disease kills more men than either bullets or steel, and that epidemics lead to disaster just as surely as defeats. Hence, efficiency in the prevention of disease is an element of vital importance in a campaign. Lord Wolseley owes such laurels as he has won in the field as much to the

skill of his doctors as to his own generalship. Yet, so far from realizing his indebtedness he goes out of his way in his *Soldiers' Pocket Book* to make the remark, which comes with peculiarly bad grace from him, that "medical advice is a good thing—when it is asked for." This spirit of fatuous militarism is responsible for a vast amount of sickness and death from disease in our recent wars. We are, therefore, waiting not without anxiety to see whether the evil tradition of fossilized pedantry which has wrought such mischief in the past is to be kept up under the new *régime*.

In a report presented to the London County Council not long ago it was stated that of 90 arrests for habitual drunkenness, in 89 the offenders were women. A very general impression prevails that the reformation of a female inebriate is practically hopeless. Dr. Branthwaite, the Government Inspector of Inebriate Homes, in his official report of last year, expressed the firm conviction that in the case of women who give themselves a fair chance there is at least an equally good prospect of success as in men. This view is, I think, opposed to that usually held by the medical practitioners who have most to do with female inebriates. Possibly, however, the views may be capable of reconciliation. It may be admitted that women who "give themselves a chance" may be reformed. But how many who are held fast in the bondage of drink do give either themselves or the physician a chance? A representative of the *St. James's Gazette*, one of the most respectable of our evening papers, has lately interviewed six specialists on inebriety with regard to this point. To the question, Can women drunkards be cured? they all replied in the negative. This is doubtless a hard saying, but it represents the opinion of men who have had exceptional opportunities of getting face to face with facts. A well-known physician is quoted as speaking to the following effect: "It is a humiliating confession in the face of so many homes, and systems, and the work the London County Council is doing, but there is no other conclusion. For two years—to give some examples—three of my patients were under treatment in various homes, and subsequently at their own homes. Not one of them is cured. One lost the craving for spirits, but in its place came a craving for drugs, and she is now a complete wreck. The other two drink as much as ever, and have not been at all affected by the system. I have never yet met a complete 'cure.'" The medical officer of a municipal Home for Inebriate Women expressed himself as keenly disappointed with the results of four years' work, and reluctantly admitted that he knew of no single case of complete cure. During that period 215 patients had passed through the home, and of this number 97 had been discharged as incurable, 103 had been sent away partially cured, there had been four deaths, and only eleven were reported "cured." As a matter of fact not one of those eleven women lost the craving, and they are all to-day heavy drinkers. This is attributed to the weak spot in the system, which is the impossibility of keeping patients under thorough supervision after they have left the home. A prominent temperance reformer whose experience of these homes extends over many years, was equally emphatic in his negative reply. "There is no cure," said he, "apart from a resort to strong drugs, which is a greater evil. I have the reports here of a score of homes, at which I am a regular visitor, but in no single instance have I noticed a thorough cure effected. The home is a splendid restraint, but soon after leaving it, a patient gives way again to drink. The perfect remedy is yet to be discovered." This testimony must sadden the heart of every lover of his kind and of every one interested in human progress, for women being, in so large a measure, the guardians of morality and setting the standard of private virtue. For nearly five years organized efforts for the reformation of female drunkards have been made here, and innumerable methods and systems have been tried to that end. And if it be asked, With what result? it must sorrowfully be answered, None. All the "cures" which have been so loudly vaunted and so widely advertised have, as was to be expected, proved utter failures; their warmest advocates are singularly reticent in regard to results, and even fanatical temperance reformers now dismiss the mention of them with a significant shrug of the shoulder.

One of our newspapers some years ago opened its columns to the public discussion of the question, Is Marriage a Failure? Whether—to speak in parliamentary style—the Ayes or the Noes had it, I do not remember, nor is the matter of any consequence. Whatever pessimists may say, it is not always a failure; and the following case may serve to show that it is sometimes a brilliant success. Mr. George Glazebrook, a Fellow of the London Society of Antiquaries, has lately published a curious pamphlet concerning a remarkably prolific couple who, during their wedded life, added no fewer than thirty-nine new members to the human race. The story is told by Mr. Glazebrook from the heraldic point of view in which he is specially interested, but it is worthy of note also from the physiological standpoint, as the facts appear to be well authenticated.

In July, 1698, Thomas Greenhill, "chirurgion of London," petitioned the Earl Marshall that, being the thirty-ninth child and seventh son of one father by one mother, he might be allowed a difference in his Arms to be borne by him in commemoration of the circumstance. From the records of the College of Heralds it appears that a grant was made in accordance with the petition. In the grant the worthy "chirurgion" is described as the thirty-ninth child and seventh son of William Greenhill, of Greenhill in ye County of Middlesex by his only wife Elizabeth, Daughter of John Jones of London. He was allowed to bear the arms borne by his father—"scilicet Vert 2 Barrs argent, in chief a Leopard passant or"—with the alteration of "ye Barrs from Argent to Ermine;" and whereas his forbears had borne for their crests in seals and otherwise a "Demi-Griphon" he was allowed to bear "ye same Gules, powdered with thirty-nine Mullets or." The Earl Marshall granted and confirmed "ye said Arms and Crest so differenced as abovesaid" unto Thomas Greenhill "in consideration of his Services to his Grace and his Family." These words show that Greenhill was the professional attendant of the Duke of Norfolk, the Hereditary Earl Marshall of England. The facts set forth in the petition may be accepted as true, as they are supported by a singularly strong concurrence of proof. Thomas Greenhill based his petition on a statement which if untrue could easily have been disproved by the Herald through whom he presented it, who was well acquainted with his family. The Earl Marshall knew Greenhill well as his chirurgeon, and by ordering the thirty-nine Mullets to be placed on the Crest was clearly willing to testify to the truth of the statements made in the petition. Moreover, it may safely be assumed that the Kings of Arms, as the Chief Heralds are styled,* jealous of the honor of the Earl Marshall and their own dignity, took care to satisfy themselves as to the truth of statements as to contemporary matters, which, if false, could so readily have been dis-

*Readers of Scott will doubtless remember the lines:

And still thy verse hath charms
Sir David Lindsay of the Mount,
Lord Lyon, King of Arms.

proved. Thomas Greenhill was the author of a treatise entitled, "ΝεκροκΗδεια, or the Art of Embalming, wherein is shown the right (*sic*) of burial, the funeral ceremonies, and the several ways of preserving the dead bodies in most nations of the world, etc." It forms a quarto volume which was published in London in 1705.

THE TWENTIETH ANNIVERSARY OF THE FOUNDATION OF THE PHILADELPHIA NEUROLOGICAL SOCIETY.

To the Editor of the Medical News:

Dear Sir: The Philadelphia Neurological Society celebrated the twentieth anniversary of its foundation on January 26 and 27, 1904, with a special scientific meeting at the hall of the College of Physicians, of Philadelphia, and a dinner at the University Club. On the first evening papers were read by Dr. James Hendrie Lloyd, on The Psychological Conception of Insanity; by Dr. S. Weir Mitchell, on The Mental Processes by Which the Rest Treatment Was Evolved; by Dr. J. Chalmers DaCosta, on The Place of Surgery in the Treatment of Insanity, and by Dr. Francis X. Dercum, on Mystic Medicine.

At the dinner, the President, Dr. Hobart A. Hare, acted as toastmaster. In calling upon Dr. S. Weir Mitchell he paid a glowing tribute to one who had illumined the science of medicine and who had contributed to the resources of medical practitioners all over the world an invaluable therapeutic measure which had accomplished more good than any other single plan of treatment in the whole range of therapeutics. Dr. Mitchell responded to the toast "The Dawn of American Neurology" and showed how the Civil War in America furnished the material from which the first systematic studies were made on the Injuries and Diseases of the Nerves. Entering the United States Army as an Acting Assistant Surgeon he was assigned to duty in a large general hospital near the site of the Broad Street Station of the Pennsylvania Railroad, in May, 1863. Dr. William A. Hammond, who was then Surgeon-General, ordered Dr. Mitchell and Dr. George R. Morehouse to take charge of a hospital for soldiers suffering from nervous diseases and transferred them to a hospital on Christian Street and later to one on Turner's Lane, where Dr. W. W. Keen and Surgeon Charles H. Alden, U.S.A., were associated with them. Dr. Mitchell paid a tribute to the wisdom of Dr. Hammond in giving them unusual facilities for observing almost every conceivable type of nervous disease and of injuries of the nerves occurring through two or three years, and these studies formed the basis of several papers on neurological subjects by Mitchell, Morehouse and Keen. Dr. Mitchell said that Dr. Keen could not be killed by overwork, but that he unfortunately turned from the higher branches of neurology to the lower domain of that of a distinguished surgeon.

Dr. Spitzka was introduced to respond to the toast "Neurology in New York," and the toastmaster referred to his studies on the Mid-Brain. Dr. Spitzka said that he stood in the mid of brains. He also referred to Dr. Hammond's work for American neurology, that but for him it would not be what it is to-day in this country. He referred to the social occasions which accompanied the early meetings of the New York Neurological Society, and the brilliant gatherings which marked the origin of the American Neurological Association. He referred to Jewell, Edes and Putnam, of Boston, to Miles and Van Bibber, of Baltimore, to Bannister, to Schmidt, of New Orleans, an indefatigable worker in the anatomy of the brain and who produced some of the most remarkable and perfect microscopical sections ever shown. He spoke of the practical school which was devoted to studies of spinal irritation and neurasthenia; of the Seguin School devoted to the exact science of disease, but permitted the absence of the imagination. The Philadelphia neurologists were referred to in complimentary terms and credited with having had a biological way of thinking. To Leidy we owe a debt, which, in his estimation, was equal to that we owe to S. Weir Mitchell.

Dr. G. L. Walton, of Boston, was introduced as one who believes in making a distinction between a degenerate and a normal man and who has suggested that we henceforth call them deviates. Dr. Walton replied to the toast "American Neurology of To-day," and spoke of the advance which neurologists had made since the days when they devoted themselves largely to moving the poles of an electric battery up and down the body, to advances in our knowledge of myelitis and in other fields. He presented greetings from the Boston Society for Psychiatry and Neurology and referred to the Philadelphia Neurological Society, which had so long stood in the forefront of neurology in this country.

Dr. Wharton Sinkler was then introduced to reply to the toast "The Relation of Medicine to Neurology" and characterized as a man who combined the functions of a successful general practitioner with that of a specialist in nervous disease. Dr. Sinkler said that the relation of Neurology to General Medicine was now that of an overgrown child; that the late Dr. William Hunt had once said that specialists had so divided the general practice that there was nothing left for a new specialist but the umbilicus. He referred to the fact that frequently gross brain lesions were mistaken for hysteria and insisted on the great value of a thorough knowledge of general medicine in the proper equipment of the specialist in nervous disease.

Dr. Charles K. Mills was introduced to respond to the toast of "Neurology in Philadelphia." He reviewed the work of the Philadelphia neurologists, when great activity began to be shown, and referred in passing to the earlier work of Hughlings Jackson, Hitzig, Matthias Duval, and others abroad; to the stimulus which Dr. S. Weir Mitchell imparted to Dr. Mills and others in arousing an interest in the subject in Philadelphia. Dr. Mills said that as a result of these efforts Dr. H. C. Wood was appointed at first a lecturer on nervous diseases in the University of Pennsylvania and was made professor in 1872, the first appointment of the kind in this country, although Dr. Benjamin Rush had previously lectured in the University on Insanity and lectures on the same subject had been delivered by Dr. Isaac Ray, in Jefferson Medical College in 1871-2. Later Dr. Dercum was made Clinical Professor of Nervous Diseases in Jefferson Medical College in 1892; Dr. Mills was made Professor of Medical Jurisprudence and Insanity in the University and Dr. Wolff, Dr. Burr and Dr. Pearce had received other appointments in the colleges. The notable work of the Orthopedic Hospital and Infirmary for Nervous Diseases was referred to, beginning in 1867-8 and growing to a great hospital. The early history of the creation of nervous wards in the Philadelphia Hospital was sketched, growing from 20 patients in 1877 to the wards to 350 patients at present. Then the origin of the Philadelphia Neurological Society was given. At the first meeting in Dr. Mills' office when Dr. Sinkler, Dr. Dercum, Dr. Lloyd and Dr. Eskridge determined to issue a call, and in January, 1884, the first meeting was held at the College of Physicians.

In the twenty years of the Society's existence there have been 616 contributions, including 250 formal papers; about 40 minor scientific contributions and 250 clinical cases presented. Most, if not all, were of a

character to stimulate interest in neurology. The work of Mitchell, A. J. Parker and others too numerous to mention were commented upon and a graceful tribute was paid to the neurologists from other cities who had frequently visited the Society and contributed to the proceedings. G. H.

SOCIETY PROCEEDINGS.

THE WESTERN SURGICAL AND GYNECOLOGICAL ASSOCIATION.

Thirteenth Annual Meeting, held at Denver, Colo., December 28 and 29, 1903.

(Continued from Page 383.)

Mutiple Loose Bodies in the Knee-joint.—Dr. John P. Lord, of Omaha, Neb., reported the case of a middle-aged man who had suffered from recurrent attacks of arthritis, the result of loose bodies in the knee-joint. The attacks of inflammation and the frequent incapacity resulting therefrom had driven the patient to seek operative relief. Loose bodies in the posterior part of the joint were the chief offenders, and it was thought that no ordinary incision would permit of their successful removal. The writer's attention having been called to the use of the Volkmann incision by the Mayo brothers for suppurating knee-joint, it was determined that this method of attack would be required in this case. Transverse division of the patella and the incision of the lateral and crucial ligaments were therefore done, as in an operation for resection. This permitted full command of the articulation. Great difficulty was encountered in removing two of the bodies located behind the condyles. The patella was wired. The capsular ligaments were sutured with chromicized gut. Drainage was instituted and an interrupted plaster dressing applied. Union was primary, and a good result secured, although motion was limited. After two months the degree of flexion amounted to about thirty per cent. Attention was called to the necessity of delaying manipulation after this procedure for fear of retearing of the immature union of the ligaments, thus rekindling the arthritis. After a period of two months, however, active efforts were made to restore function, with greater success, although it was probable that full function could not be regained after such extensive surgical trauma of disarticulation. No precedent in literature was found for so radical an operation for this condition. There were ten of these loose bodies of large size, and so distributed that the ordinary incisions recommended would have been ineffective in securing the bodies, part of which were attached by pedicles. Less radical means would have defeated the object of the operation, and the patient's relief would not have been complete.

Chronic Adhesive Sclerosing Peritonitis.—Dr. H. G. Wetherill, of Denver, Colo., read a paper on this subject, in which, after reporting an interesting case at great length, he presented the following points: (1) The rareness of the disease. (2) Failure to generally recognize and to fully describe it on this continent, though it had been long well-known abroad. (3) The pathognomonic sign, namely, inability to unite the shrinking peritoneum when once divided during the course of the operation, which, so far as the writer was aware, he was the first to observe and describe. (4) The essential chronicity of the disease, as indicated by longstanding symptoms, otherwise unexplained, and by the shrinking and retraction of the peritoneum at the first operation, sixteen months prior to the patient's death, which proved the previous existence of the malady, and that it was not directly or indirectly the result of the operation. (5) The great importance of covering all denuded surfaces when, before or during the operation, chronic adhesive sclerosing peritonitis was diagnosed. (6) The characteristic subperitoneal connective tissue hyporplasia which was the pathologic feature of the disease. (7) The shrinking or contraction of the peritoneum caused by it, the clinical feature. (8) The possible significance of a somewhat similar pathological process taking place in the skin, coincident with unusual gastro-intestinal symptoms otherwise unaccounted for. (9) The danger of serious sequelæ incident to its surgical treatment. (10) The possibility of accomplishing much through medicinal measures, when the etiology of the disease was better understood. Potassium iodide and inunctions of mercury were worthy of careful consideration and trial in any suspected case of plastic peritoneal sclerosis.

Median Perineal Prostatectomy.—Dr. George E. Goodfellow, of San Francisco, Cal., had operated by the median perineal route in cases of hypertrophy of the prostate approximately 73 times, without any immediate mortality, so far as he was aware. He described the technic of the operation in detail. All of these operations were done under spinal anesthesia. Recently he had modified the operation a little. Instead of making an incision, as he had previously described in his papers, from the base of the scrotum to the margin of the anus, he now made an incision an inch in length above the perineal center, and through this opening he could enucleate the prostate with his forefinger. If it was necessary to enlarge the opening, he did so in the usual way. But through an ordinary incision he had enucleated a prostate weighing 7½ ounces. In no case had he failed to secure anesthesia when he had entered the canal. The needle was inserted between the second and third lumbar vertebræ.

Complications and Sequelæ of Prostatectomy.—Dr. James E. Moore, of Minneapolis, stated that no single operator had had sufficient experience to enable him to speak authoritatively upon the subject, and such extremes of experience had been reported that it was difficult to estimate the real dangers and difficulties of prostatectomy. It was altogether too grave an operation to be resorted to as a routine treatment for enlarged prostate, and was only applicable to properly selected cases. There would always be a place for palliative measures in neglected cases of prostatic enlargement. The most frequent cause of death following this operation was uremia, consequently the most important preliminary examinations were those of the kidneys. The next greatest danger was sepsis, and in the presence of an infected bladder it was an ever-present one. Positive indication for operation was very often a complicating cystitis, and it was for the relief of this complication that the various palliative measures were most frequently employed. The only satisfactory treatment for this complication was drainage, and this was best brought about by perineal prostatectomy. Stone was a frequent complication of enlarged prostate, and should always be sought for and removed during the operation. The incision for a prostatectomy, when too extensive, caused various complications. Hemorrhage was an occasional complication, but its dangers had doubtless been overestimated. A serious objection to the suprapubic operation was the extensive injury done to the bladder; while the most difficult problem connected with the perineal operation was how to avoid injury to the rectum. As sequelæ of prostatectomy, he mentioned impotence and incontinence or dribbling. A communication between the urethra and the rectum was

one of the sequels met with occasionally. Epididymitis was quite a common sequel of prostatectomy, sometimes becoming so troublesome as to require the removal of the epididymis. Because the writer had dwelt briefly upon possible, as well as probable, complications and sequelæ of prostatectomy, he did not wish to be classified as a pessimist. Some failures were bound to follow this important operation, as they did every operation of like magnitude. But notwithstanding this fact, it was destined to be one of the greatest boons modern surgery had to offer suffering mankind.

The Use of Silver Foil to Prevent Adhesions in Brain Surgery.—Dr. M. L. Harris, of Chicago, said the general principle of the introduction of some foreign substance had been tried in a sufficient number of cases of brain surgery to prevent adhesions, and with results which seemed to justify a belief in its efficacy. Of the materials thus far proposed, the author believed the thin foils were the best, and of these he preferred the silver foil. It was thin, soft and smooth. It conformed to all irregularities of the surface on which it was laid. As many layers might be applied as necessary to secure a smooth, unbroken surface. It was not only tolerated very kindly by the tissues, but exerted a beneficial influence on granulating or healing surfaces. The foil might be placed directly in contact with the brain tissue between the pia and dura, or wherever it might be necessary to accomplish the purpose desired. The author had used the silver foil in a number of cases of brain surgery, and urged its more frequent use. He cited a case which illustrated the principle.

Resection of Arteries and End to End Union: Experimental Research.—Dr. O. Beverly Campbell, of St. Joseph, Mo., detailed 40 experiments on animals, in which different methods of operating were adopted. The author stated that from a recognition of the probably correct theory of the coagulation of the blood, and considering the experiments that had been made and the results obtained, eliminating the process of infection, there still remained factors in the production of thrombosis in the suture of arteries yet to be met and overcome before it could be hoped to re-establish permanently the circulation of the blood following end to end union of arteries. The possibilities of permanently re-establishing the circulation of the blood in arteries following end to end union, or resection, was in the author's opinion yet to be demonstrated.

In the experiments of Murphy, as well as the writer's, it was observed that where thrombosis did not occur, in the majority of cases an obliterating endarteritis occurred. Murphy observed: "After suture of a vessel there is a tendency to endarteritis obliterans." As this process was one of slow formation, it was one of minor importance as to the ultimate result of arterial suture. While the endarteritis was occluding the vessel, collateral circulation was being established, and the danger of death of the part obviated.

Conclusions.—1. The death of the endothelial cells following injury to arteries and the addition of cell death incident to the trauma inflicted from operative measures for the repair of the injury probably furnished the necessary nucleo-albumin needed for the production of the chemical process of coagulation of the blood. 2. That in the resection of arteries and in their suture in continuity, the suture should not penetrate the intima, as the additional death of endothelial cells incident to passing the suture and surrounding it from pressure necrosis might contribute to the coagulation of blood. 3. That the most rigid aseptic technic should be followed in surgical work upon the arteries.

Surgical Treatment of Pulmonary Abscess.—Dr. Van Buren Knott, of Sioux City, Iowa, stated that in two cases which he had seen, although the patients presented all symptoms common to pulmonary abscess, and the physician in attendance, as well as himself, were satisfied of its existence, they were only able to locate it in one case at the autopsy, and in the other suffered the indignity of having the diagnosis confirmed and failure to locate the abscess accentuated by its rupture into the pleural cavity, with empyema as the penalty. While in many quarters attempts to locate the abscess by aspiration had been denounced as unsafe, and injudicious, his limited experience had taught him the inadvisability of attempting to open an abscess of the lung without the aspirator as a guide. The physical signs common to this condition in many cases were alone not sufficient to render its exact localization possible, and while one might be satisfied in a given case that the lung contained an abscess, and from the usual methods of examination had decided as to its location, this point should be corroborated by the aspirator before proceeding with the operation. Two cases of pulmnary abscess were reported. As to the treatment of these cases by other than surgical methods, the author said it promised little, and as the complications of gangrene, empyema and bronchiectasis so seriously increased the mortality, even in the hands of the best operators, it would appear that a plea made for early operative relief of patients suffering with pulmonary abscess was not inconsistent with the facts.

The Anatomy and Physiology of the Peritoneum and Their Relation to the Treatment of Peritonitis.—Dr. Arthur E. Hertzler, of Kansas City, Mo., said the stomata were declared to be artefacts, for the reason that they occurred only when the peritoneum was treated with a silver nitrate solution. They did not appear when dilute solutions were injected into the peritoneal cavity of the living animal. Other reasons had been given in a previous paper. Attention was called to the fact that the universal reference to the deposit produced when a serous membrane was treated with silver as an albuminate of silver was an error. No such substance existed. What was formed was in all probability a silver chloride produced by the action of the Cl in the fluid with the Hg in the silver solution, producing the stable silver chloride. The peritoneum was covered by a layer of fat cells resting on a layer of elastic tissue. Below this were the blood and lymph vessels. Both systems always formed complete channels, and the lymph vessels never formed a connection with the peritoneal cavity. In the process of absorption from the peritoneal cavity the fluid must pass between the endothelial cells lining the peritoneal cavity, through the elastic layer, and between the cells lining the blood vessels. Whether the cells of each of these layers were united with the intercellular bridges could not be stated. The absorption of 7-per-cent. NaCl solution took place more rapidly than any other solution. Salt solutions of more than one per cent. were absorbed more slowly. Certain solutions caused a transudation, instead of being absorbed. Chief among these was formalin. It was effective in a dilution of 1 in 10,000. Absorption was likewise lessened by the production of an artificial hydremia. Normal NaCl solution might be used either by hypodermoclysis or per rectum, the former being the more rapid and more certain.

Applying these researches to the treatment of peritonitis, the fallacy of normal salt irrigations was insisted upon. By using this fluid the toxins were hurried into the circulation more rapidly. The logical treatment was to employ those means which retarded absorption. The production of an artificial hydremia might be accomplished either by the injection of the salt solution under the skin or per rectum. Formalin in the strength indi-

cated was safe, as had been previously determined by intravenous injections.

Cholecystitis, with Special Reference to Etiology and Diagnosis.—Dr. T. E. Potter, of St. Joseph, Mo., after reviewing the subject, said that the most probable cause of infection of the gall-bladder was not through the intestinal walls, nor through the hepatic tissue, nor from the duodenum through the hepatic ducts, but through the blood of the portal system; and from this source we not only had the catarrhal and parenchymatous inflammations, with occasionally empyema, but sometimes malignancy caused by the presence of stones. Among the most prominent symptoms he mentioned tenderness immediately under the ninth intercostal cartilage, saying that this symptom was as valuable as tenderness in the region of McBurney's point in cases of appendicitis. This tenderness might extend down for two or three inches. To elicit it, one should press the fingers up under the ribs and require the patient to take a deep inspiration. The patient would complain of pain, and if the fingers were held firmly, the act of inspiration was instantly stopped as though there had been a sudden attack of pleurisy.

The Treatment of Posterior Perforations of the Fixed Portions of the Duodenum.—Dr. J. E. Summers, Jr., of Omaha, Neb., read a paper on this subject. Retroperitoneal perforations of the duodenum were of such infrequent occurrence that little attention had been directed towards their treatment. After a careful study, he had been unable to find anything written upon the subject that was at all satisfactory. After referring to the surgical work of Kocher, Villard, Jaboulay, Henle, Jeannel and Mikulicz, the author reported a case of gunshot wound involving the anterior wall of the upper vertical portion of the duodenum and the posterior wall of the duodenum nearer the lower angle. A young man, in attempting to escape from a policeman, was shot in the back by a 38-caliber Colt's revolver, the ball entering one inch below the twelfth rib and through the outer edge of the erector spinæ muscles, coming out in front 1½ inches below the juncture of the ninth right costal cartilage, with the right rectus muscle. One hour after the shooting the patient was etherized; the abdomen was opened by a vertical incision through the wound of exit. It was observed that the bullet had in its course from behind forward perforated the duodenum and gall-bladder. The wound in the anterior duodenal wall was sutured, likewise both holes in the gall-bladder. Because of the bad condition of the patient, it was decided not to attempt to expose the posterior duodenal wall from in front, but rather to rely temporarily upon an incision from behind, and the introduction of the gauze pack. In the carrying out of this latter procedure the writer discovered that the bullet had made a groove through the lower pole of the right kidney, another reason for the posterior incision. A liberal gauze pack drain was introduced down to the repaired duodenal wound of exit, and the wounds of the gall-bladder, and the abdomen closed so as to admit of the drainage. The patient died three days later, the post mortem illustrating the cause of death to be a retroperitoneal phlegmonous inflammation without peritonitis. Had the man's condition permitted, the author would have sutured the wound in the posterior duodenal wall after freeing and rotating the duodenum to the left. In the light of today one should, in a like case, in addition to repairing the duodenal wound or wounds, occlude the pylorus by means of a purse-string stitch. Either at this same operation or as soon thereafter as reaction permitted, a gastro-enterostomy should be made. None of the procedures which he had indicated required much time for handling of the intra-abdominal contents. They were the only rational methods of treating a perforation of the posterior wall of the duodenum. It was almost impossible for a gunshot wound of either the stomach or duodenum, which perforated both walls, to be limited to those organs. Therefore, under such circumstances, in addition to the repair of any intraperitoneal organs involved, proper incisions must be made to provide for retroperitoneal drainage.

Officers.—The following officers were elected: President, Dr. Charles H. Mayo, Rochester, Minn.; First Vice-President, Dr. H. D. Niles, Salt Lake City, Utah; Second Vice-President, Dr. L. L. McArthur, Chicago; Secretary-Treasurer, Dr. B. B. Davis, Omaha, Neb.

Milwaukee, Wisconsin, was selected as the place for holding the next annual meeting; time, Dec. 27 and 28, 1904.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Annual Meeting, held at the New York Academy of Medicine, January 11, 1904.

The President, Andrew H. Smith, M.D., in the Chair.

Election of Officers.—The following officers were elected: President, Dr. T. E. Satterthwaite; Corresponding and Statistical Secretary, Dr. F. C. Raynor; Chairman for the Borough of Queens, Dr. N. O. Fitch; Member of the Executive Council, Dr. S. G. Cook. It was announced that the Council had appointed Dr. J. Lee Morrill, treasurer, in the place of the late Dr. A. D. Ruggles.

Membership.—The annual report of the Corresponding and Statistical Secretary showed that there are now on the roll of the Association 677 Fellows, 100 having been added during the past year.

Synchronous Ureter Catheterization.—Dr. F. Tilden Brown gave a very successful demonstration of synchronous ureter catheterization on the male subject, by means of his improved composite cystoscope. He also presented his first cystoscope, introduced in 1899, and stated that his cystoscope was the first to be employed for the purpose named.

The Bladder in Health and Disease, as Demonstrated by the Cystoscope.—Dr. Henry G. Spooner read a paper on this subject. He first gave a résumé of the history of modern cystoscopy since Nitze in 1879 had introduced a method of directly lighting the bladder by means of an electric lamp. After briefly describing the instruments now in use he stated that the New York Post-Graduate is the only medical school in this country where any practical instruction in cystoscopy is given. It is commonly asserted, he said, that after eight or ten lessons, the student will have acquired sufficient skill to catheterize the ureters, but this is an erroneous impression. Out of 12 men who completed Casper's course during the past autumn, only two succeeded in catheterizing a ureter, and one of these had been a former pupil of Dr. Spooner. Since Fenwick's work, issued in 1889, there has been no text-book on cystoscopy published in English. Only after continuous effort and a broad understanding can judgment be formed for the proper selection of cases for a cystoscopic examination. Before attempting to use the cystoscope on the living bladder the student should practice on one of the phantom bladders now obtainable, or, what will answer just as well, an apothecary's mortar lined with beeswax, to which little pieces of colored sponge are attached. Practice on the cadaver is unsatisfactory, for the reason that the urethral walls have lost their elas-

ticity. The cystoscope tolerates high temperatures very poorly. Having mentioned the methods employed by various authorities to render the instrument aseptic, he said that though the cystoscope is absolutely surgically clean, the urethra is very rich in bacteria. When a lubricant composed of glycerin-tragacanth with the addition of a 1 to 500 solution of *hydrargyrum oxycyanatum* is used, the instrument is said to convey no microorganisms into the bladder. To prevent any possibility of infection the bladder is washed out after each examination with a 1 to 5,000 solution of mercuric cyanide. Casper uses as a routine matter a four-per-cent. solution of cocaine as an anesthetic, and Nitze prefers a similar solution of eucaine, as safer. The bladder is then filled with a two-per-cent. solution of boric acid, and the cystoscope is introduced into the bladder with the greatest possible gentleness, to avoid any trauma of the urethra, which must be of sufficient calibre to permit of the easy passage of a soft rubber catheter 21 to 25 F. For a successful cystoscopic examination the bladder must be tolerant enough to retain at least 60 c.c. of fluid. When the bladder has been distended to the extent of 150 c.c., the cystoscope is inserted until the beak lies in the middle of the vesical cavity. The lamp being then illuminated, a clear luminous field of vision of a light yellow color can be seen. If the bladder is dilated with urine, the picture is more deeply yellow. The knob of the handle of the cystoscope indicates the position of its beak. As the shaft of the instrument is elevated, lowered, moved laterally, or rotated, all the internal surface of the bladder, with the exception of a small portion of the posterior surface, can be seen with the No. 1 cystoscope of Nitze. With the beak pointing up, the instrument is gradually drawn toward the operator, when a darker zone, representing the neck of the bladder, extends across the lower part of the field of vision. If the cystoscope be further retracted, this darker zone increases in size until it covers one-half the picture. On still further retraction, darkness ensues, as the prism has been covered by folds of the prostatic urethra. Before any additional examination is made, the light must be turned off, and the beak reinserted into the middle of the cavity of the bladder. When the cystoscope is pushed back, so that the prism is focused on a surface of mucous membrane, a pale pink field, shading on the orange, with parallel arterial branches, is seen in the normal bladder. The color of the healthy bladder varies, however, with the individual and with the locality of the bladder in the same individual; also with the brilliancy of the illumination, the distance of the prism from the bladder-wall, and the transparency of the fluid medium. When the beak is rotated below 1908 and moved forward and backward, there can usually be distinguished the interureteral line, which represents the posterior boundary of the trigonum. This line is a very important landmark, as the ureteral orifices can be found at its lateral termination. When the bladder is not sufficiently distended, the folds of mucous membrane of the trigonum will prevent the interureteral line and the ureter openings from being seen. When the prism is placed directly on the ureteral orifice, the latter is observed as a luminous line in the form of a slit, which is generally located on an elevation. At the moment when drops of urine exude from the opening the ureter can be seen to bulge on the surface of the vesical wall. While the ureteral orifice is usually situated on a little round protuberance, it may lie in a depression. Its form is materially altered after cystitis and also after some constitutional diseases. Just when the variations of the normal bladder have advanced to a sufficient degree to constitute a pathological condition is often difficult to determine. When there is any hindrance to micturition, the muscular framework of the viscus must do more work than formerly. Slightly trabeculated bladders are found both in youth and old age, and cannot be considered pathological. In cases of urethral stricture or prostatic enlargement the bladder hypertrophies more and more, in consequence of its efforts to expel its contents, until we meet with a markedly trabeculated condition. As the intravesical pressure is increased, the urine is forced in between the trabeculæ, and pouches, not infrequently of considerable size, become formed. In extreme cases a rupture of the bladder, with fatal peritonitis, may result.

Its Use in Cystitis.—In cases of cystitis it is generally stated that the cystoscope is contraindicated on account of the intolerance of the bladder. With patience and perseverance, however, all the details of the inflammed bladder can be studied cystoscopically, the dilated arteries, the swollen and deeply congested mucosa, and here and there extravesations of blood or surface ulcers. The cystoscope has shown that gonorrheal cystitis is a localized process, involving the neck of the bladder and the trigonum, but never extending any further. More frequently than was formerly supposed, cystitis tuberculosa is engrafted in the chronic gonorrheal area. Miliary tubercles can be seen in the form of small round gray elevations, surrounded by hyperemic areas. Later, extensive ulcerations of the mucosa and submucosa are formed. After inflammation of the bladder, especially the gonorrheal variety, the region of the trigonum shows a remarkable tendency to papillary proliferation. The deeper layers of the polymorphus epithelium of the trigonum are of considerable interest, inasmuch as the spindle-shaped and cylindrical cells have much similarity with isolated elements of certain malignant growths. From the histological formation of the trigonum it is therefore easy to understand why this region should show such a tendency to papillary proliferation. As growths of the bladder increase in size for a long time without causing the patient any suffering, an early diagnosis can be secured only by means of a cystoscopic examination. These small villous growths are the starting points of most of the tumors of the bladder. Single growths with small pedicles are mostly benign, while tumors having a broad base are generally malignant. In cases of vesical calculus a cystoscopic examination will give us an exact knowledge of the existing conditions. Small concretions may be overlooked, and the cystoscope may reveal their presence. To determine the extent of mechanical hindrance to urination occasioned by hypertrophy of the median lobe of the prostate, the cystoscope is our only guide. Dr. Spooner's paper was illustrated by a large number of diagrams, accurately colored, representing the various conditions described.

The Cystoscope Not of Universal Applicability.—Dr. Frederic E. Sturgis said there were many instances in which the cystoscope was of very little service. This was especially the case when hemorrhage was present.

Asepsis. The usual agents employed to secure asepsis, carbolic acid, formaldehyde, etc., were objectionable because if used in sufficient strength to be of service for this purpose the solutions must be stronger than safety admitted. He thought the best things to employ were hot water, alcohol and soap. The water should not be too hot, however, as this would prove injurious to the cystoscope. It was impossible by any method to obtain complete asepsis, and, at all events, he believed that most of the bacteria (about which we really know very little) were less deleterious than was generally supposed. In his opinion the procedures usually advocated, such as syringing the urethra thor-

oughly, injecting the bladder, and giving urotropin as an internal urinary disinfectant, were productive of more harm than benefit. There was nothing better as a lubricant than sterilized oil.

Anesthetics.—He objected to the use of cocaine, first, because in irritated conditions of the mucous membrane it might prove dangerous, and, second, because by depleting the mucous membrane of blood it gave rise to misleading appearances of the parts. Again, the pain which occurred after its effects had passed off was apt to be more severe than if no anesthetic had been employed. As to eucaine, this was absolutely worthless.

Amount of Fluid Required in the Bladder.—There should be five or six ounces of fluid in the bladder, if the patient could stand it; in fact, the fuller the bladder, the better, as the maximum distention possible was desirable.

Only Recently the Cystoscope has Proved of Practical Service.—Dr. Eugene Fuller said that although the cystoscope had been known for a number of years, we were now able to do much more with it than formerly, on account of the improved apparatus at our command. Thus, the introduction of the cold lamp had really revolutionized the use of the instrument. Burns had frequently resulted from the hot lamp, and it was always a source of danger and anxiety. Again, ureter catheterization was almost entirely impracticable with the older cystoscopes, while with Dr. Brown's improved apparatus it could be easily done. All that was needed was a good eye, a steady hand, and good judgment as to where to look for the ureter orifices.

Air Cystoscope.—The air cystoscope of Dr. Lewis, of St. Louis, is of great service in cases where the bladder cannot be distended, but it is not of very wide applicability. In order to employ the cystoscope with advantage a good deal of practical study is required, and facilities for becoming familiar with its use are now afforded in this city.

Hemorrhagic Conditions.—Dr. Sturgis had spoken of the small utility of the cystoscope in conditions with hemorrhage. He thought, however, that by means of the adrenalin extracts we could usually now get rid of hemorrhage and obtain a good view of the parts. The cases presenting the most difficulty were those in which the hemorrhage comes from the anterior portion of the urethra and where the passage of the instrument itself excites hemorrhage.

Prostatic Hypertrophy.—As regards prostatic hypertrophy, he had never been able to derive much benefit from mapping out existing conditions before operating. The cystoscope was an excellent instrument in its place, but we could not do everything with it.

Facilities.—Dr. Ramon Guiteras said that in using the cystoscope the more elaborate tables were naturally the best, and the one which Dr. Brown had shown in making his demonstration certainly left nothing to be desired. For all practical purposes, however, an ordinary operating table served very well. Glycerin was the best lubricant, and to secure asepsis he was in the habit of employing the formaldehyde sterilizer. Cocaine could be resorted to if necessary, but in most cases the cystoscope could be used without it. From five to ten ounces of fluid in the bladder were the most satisfactory quantity. Certainly nothing had done more for modern cystoscopy than the substitution of the cold for the hot lamp. Under its use the patient suffered far less during manipulation and examination.

Different Cystoscopes of Service.—There is a variety of cystoscopes, and the operator should be able to use different ones as occasion required. Thus, for women the straight cystoscope was the best. The air cystoscope could not be compared with the water instrument as regards general utility. Practice, patience and perseverance were required for the skilful use of the cystoscope, and particularly in catheterization of the ureters. Especially was this the case as regards the air cystoscope.

A Simplified Cystoscope.—Dr. Follen Cabot presented a simplified cystoscope which he had devised. It was provided with but a single telescope, and was less expensive than the more elaborate instruments. He said it could be used with air as well as a solution. Air, he had found, was a little more painful.

Roentgen Rays in the Treatment of Cancerous and Skin Affections; Roentgen Rays in the Treatment of Epilepsy; Roentgen Rays in Diagnosis.—This was the title of a paper by Dr. J. Herman Branth. He said he desired to speak frankly of his own personal experience, which might vary somewhat from that of others. Instead of indulging in theories and scientific speculations, he would direct attention to practical points and to facts which he had observed again and again. He had to confess that he was not yet entirely rid of a certain skepticism as regards the remedial value of the X-rays which he had very strongly when he began to work with them. This agent was certainly not a panacea, and he hoped that due conservatism would prevail in the profession. Well tried remedies should not be lightly cast aside for the new and untried. At the same time, it was a fact that electricity, in one form or another, had gained a position as a remedy in affections in which heretofore, notwithstanding the pharmacological and surgical resources at our command, we had been helpless. In malignant disease the results with the X-ray are variable. The deeper the cancer, the greater the difficulty of successfully treating it; yet it has been his observation that in nearly all the deeper seated cases (this applies particularly to mammary cancer) the disease comes to a period of rest, further development being stopped for a time. He has not seen one case of cancer of the breast recede into a normal condition under X-ray treatment alone. There always remains a hard or perhaps more or less doughy deposit, and from this, as a focus, any degree of activity may at any time be developed. Consequently, he would not call this condition a cure. In his opinion it would be wrong to indiscriminately displace the knife by X-ray applications. The results when the cancerous tumor is removed by thorough excision, and this followed by X-ray applications, are oftener satisfactory, and he has observed several recoveries from post-operative recurrences as a result of X-ray treatment. It appeared to him that radiotherapy was the most successful in those cases in which the débris could be thrown off directly. If the Roentgen rays had the property of stimulating protoplasm into higher and more healthy activity, this might perhaps afford some explanation of the results observed not only here but in epilepsy. For epithelioma, rodent ulcer, lupus, and some other skin affections the X-rays prove an almost certain remedy. Dr. Branth here presented a private patient, a lady who had had lupus for fifteen years. All this time the best skill of prominent medical men was of no avail, the disease steadily progressing. A photograph was shown of her face when she applied to Dr. Branth for treatment. It was a remarkable result of the X-ray applications that a good part of the disease-invaded tissue was restored or in process of healing. This patient is still receiving one treatment a week. As regards Roentgen rays as a remedy in epilepsy, all cases of the disease are not amenable to this treatment, as, for instance, those in which degenerative processes in the brain have set in. In many instances the occurrence of the seizures

is believed to depend upon the instability of the cellular brain elements, or an abnormal metabolism, and as it is accepted by many authorities that the X-ray stimulates the vital activity of protoplasm, it was on this theory that the treatment was adopted. For the results obtained, Dr. L. C. Vincent deserved at least half the credit. About a year ago he and Dr. Branth together planned the method, but, owing to severe and prolonged illness, Dr. Vincent was personally unable to take part in the practical work. Three treatments per week are given, beginning with five minutes exposure at fifteen inches distance, and gradually increasing to ten minutes exposure and ten inches distance. A hard, or high vacuum, tube is employed, and a different part of the cranium is exposed at each sitting. The hair may drop out in areas, but it is certain to return in a stronger growth than before. In some epileptic patients there seems to exist a bromide drug habit, and to suddenly withdraw the bromides may cause a shock to the system.

In a few instances the best results were secured by returning to small doses of the bromides in addition to the X-ray treatment. With very few exceptions the patients gain in weight at a surprising rate. A lad, fourteen years of age, who was presented by Dr. Branth, had gained 9 pounds in four weeks. At the time the treatment was begun, November 8, 1903, the convulsions (grand mal) were becoming more and more frequent and severe, notwithstanding the free use of bromides. Since the date mentioned he had not had a single seizure, and his mother and his teachers had been astonished at his mental, as well as bodily, improvement. In his case the bromides had been at once withdrawn, and in addition to the X-ray treatment to the head, the static brush had been applied to the spinal region and head. Dr. Branth said he could cite a number of such histories, varying, of course, in different particulars. The gain in weight was noticeable even in those cases in which the mental faculties did not improve so rapidly. In cases of both grand and petit mal it was observed in general that the seizures became lighter and of shorter duration, that the intervals were longer, and that when a seizure occurred it was followed by less prostration than formerly. As to the diagnostic value of the X-rays, the surgeon may be guided by an X-ray photograph with more safety and certainty to give relief, while many patients have already been saved from the necessary danger of an operation because the X-rays demonstrated that an operation was needless. A photograph is far more reliable than a fluoroscopic examination, as it reveals details which are invisible by the fluoroscope. Dr. Branth presented a number of radiographs taken by himself. One was of an arm from which he excised the elbow-joint in 1896. The new false joint is cartilaginous, but there is nearly the normal amount of motion in it. This patient was also presented. One of the radiographs exhibited was taken through the skull of a young man, and demonstrated the value of X-rays in locating foreign bodies in the brain. A short time ago Dr. Branth had read in a medical journal that the X-rays could be used as a certain test for the existence of the life spark. This was proved to be an error by a radiograph which he presented of an Egyptian mummy's hand, dead about 3,500 years. In comparing this with the picture of living hands it was seen that in both the bones showed almost equally well. In the radiograph of a six months' fetus the ossified condition of the long bones was well shown; also the cartilaginous condition of the joints, the cartilage offering no resistance to the X-rays. The radiographs presented nothing new and were of inferior quality.

CHICAGO SURGICAL SOCIETY.

Joint Meeting of this Society and the Chicago Medical Society, held January 13, 1904.

The President, E. Wyllys Andrews, M.D., in the Chair.

The Surgical Treatment of Bright's Disease.—This was the subject for discussion.

The Medical Aspects of Decapsulation of the Kidneys for the Cure of Chronic Bright's Disease.—Dr. Arthur R. Elliott opened the debate. He stated that a study of the statistics available to date showed the total number of cases of true Bright's disease operated upon as 76; died, 36; mortality ratio, 47.36 per cent.; improved, 26; improved ratio, 34.21 per cent.; unimproved, 12; unimproved ratio, 15.78 per cent.; rendered worse, 2; worse ratio, 2.66 per cent. Of the 36 fatal cases, 13 died within the first week and a total of 20 during the first month following operation. He said we were justified in combining the mortality, unimproved and rendered worse ratios, and thereby estimating that 65.80 per cent. of cases operated on in the various forms of Bright's disease failed to be favorably influenced. On grounds furnished by statistics and considerations, the entire class of chronic interstitial nephritis was not adapted for surgical treatment. The only exception to this rule was the comparatively rare circumstance of an acute nephritis engrafted upon a chronic interstitial lesion, in which event the acute inflammatory attack might introduce the necessary element of intracapsular tension. The question of the admissibility of operation in cases of advanced chronic interstitial nephritis was answered by statistics. The mortality (76 per cent.) was almost a prohibitive one, and the chances of prolongation of life much less promising than those which medical treatment held out. Experience to date would seem to indicate that cases of chronic parenchymatous nephritis in young subjects and especially those cases following acute infective nephritis, offered the most favorable material for operation. A study of the statistics of operations in parenchymatous nephritis indicated that a competent heart was the most important consideration influencing the decision to operate.

Dr. Elliott closed by emphasizing the following points: (1) Chronic Bright's disease, in its development constitutes a diseased condition of the entire system. (2) It is a disease of very gradual development, and in the great majority of cases, has existed for months and years before the patient comes under observation. (3) It is produced by a chronic toxemia, either systematic or infective in origin, which produces coincidently as a result, widespread arterial and cardiac degenerative changes, which, being once established, are permanent, and which in their development eventually constitute the most threatening element of the disease. (4) General edema or anasarca in chronic renal disease is in many instances in great measure a cardiac dropsy brought about by advancing myocardial degeneration. It is occasionally so in chronic parenchymatous nephritis, and almost invariably so in chronic interstitial nephritis. (5) It may be stated that in like manner, developing anuria and uremia in chronic nephritis, may be largely cardiac in production, the functional inadequacy of the kidneys having its inception in the fall of blood pressure, incident to circulatory failure. (6) In the later stages of chronic nephritis of whatever character, the case is apt to take on these cardiac aspects which virtually convert the therapeutic problem into a question of sustaining a failing heart. (7) Albuminuric retinitis must be looked upon as one of the terminal symptoms of chronic nephritis. The concordance of opinion places a limit of two years upon the prognosis

after the development of this complication. The statistics of operated cases gathered by Suker, show that in place of prolonging this limit of expectancy, operation has a decidedly contrary effect. (8) It is to be borne in mind that chronic nephritis is a disease of slow and spasmodic development. It is well to realize its exacerbations and remissions, so as to avoid the error of mistaking remissions for cures. (9) The mere fact that the general condition of the patient improves somewhat after decapsulation does not establish the validity of the operation, for hygiene and rest will do the same for the patient to a remarkable degree in many cases. As the factors of hygiene and rest are invariably associated with the surgical procedure, it is possible that the resulting benefit may, to some extent, accrue from those sources. (10) The results of experimentation demonstrate that within a period of three and one-half months after decapsulation a new, and in most cases, a tougher fibrous envelope, has taken the place of the original capsule. This fact may account for the many relapses and deaths after that period in operated cases, and in chronic cases, at least, it narrows the prospect of improvement to a period of months.

A Consideration of the Surgical Treatment of Chronic Bright's Disease from an Ophthalmic Standpoint.—Dr. George F. Suker followed with a paper on this subject.

After presenting and analyzing the statistics which the author had collected from the literature, he summarized as follows: (1) As at least 25 per cent. of all grades and varieties of chronic Bright's disease present evidences of retinal or other fundus complications; and (2) as these fundus complications are usually of the degenerative inflammatory type, attended by like changes in the kidney; and (3) as the cardiovascular system is or shortly will be seriously involved; and (4) as such changes may develop in the fundus without any subjective symptoms on the part of the patient; and (5) as these retinal complications are indicative proof of a general systemic circulating toxin; and (6) as the death rate of this class of patients under medical treatment (hospital and private practice) is about 75 per cent. for the first year, and, at least 85 per cent. for the second year, scarcely any surviving four years, and practically 100 per cent. when operated upon; and (7) as these fundus findings are of paramount prognostic import in an inverse proportion to the age of the patient; and (8) as the medical aspect of this question as presented this evening by Dr. Elliott offers as good, if not better, results than the decapsulation in like cases; therefore, this climacteric array of positive clinical data, which is so palpably available, should not be disregarded on the part of the surgeon in endeavoring to establish the validity of this operation under discussion. Especially so when it can be said that in this class of cases some verily died because of the operaton and others in spite of it, and all fell within the pale of the classic two-year limit, and a larger share died within six months.

Finally, the writer has reasons to believe from the facts above mentioned, that he has conclusively proven decapsulation of the kidney for chronic Bright's disease to be absolutely contraindicated whenever such patients have a retinitis or a neuroretinitis albuminurica, with or without retinal hemorrhages.

Decapsulation of the Kidney for Bright's Disease.—Dr. E. Wyllys Andrews reported four cases of this operation. The first was a man, thirty-two years of age, who had had chronic interstitial nephritis for some years. Double decapsulation was performed, following which there was decided improvement in the total amount of urine passed, as well as solids, and for a period of three weeks thereafter the urea exceeded one per cent. and remained between one to two per cent., while the number of casts was about the same. There was a small amount of albumin in the urine. The subsequent history showed a reduction in the amount of urea again. The patient was watched carefully, and at the end of nearly eighteen months after decapsulation there was very little change for the better, nor yet was the patient worse. In the second case the man had been six months before, and six or eight months after, decapsulation, constantly on the strictest diet, and while he reported himself robust, the urinary findings were about the same as before the operation. The third case was a child nine years of age, whose kidneys were decapsulated under spinal anesthesia. The immediate result of the operation was favorable; but later the patient was as bad as before decapsulation. The fourth case was one of intermittent hydronephrosis and nephritis, and was operated on two months ago. There was relief from all of the symptoms by a combined nephropexy and complete decortication of one kidney, but he thought the nephropexy brought about the relief rather than the decortication.

Dr. A. J. Ochsner said we must look upon cases of nephritis as forming two distinct classes. In the one class we had healthy kidneys, one of which had been injured mechanically, and this injury having been corrected by fixation and decapsulation, the kidney itself contained the elements which were necessary for its recovery. This class was discussed by Edebohls in his first paper. In the other class, with systemic causes, the conditions were different. Tension might depend upon edema of the kidney. It was increased in these advanced cases by the edematous condition of the organ itself. After relieving tension there was a flow of edematous fluid the same as was found in cutting through the remaining edematous tissues. Having relieved edema, it was easy to imagine that the kidney tissues would be relieved of a certain burden, and the tissues which are practically inactive before became active again. But these kidneys did not possess the elements necessary for recovery ordinarily. As regards patients suffering from advanced nephritis he had operated on seven cases which seemed hopeless. All had died with the exception of two. One of them, the last one operated upon, was a man fifty-one years of age, an alcoholic, with marked edema, patient having all the symptoms of advanced interstitial nephritis. While he was still alive, he thought he would soon die. One case corresponded closely to the one narrated by Dr. McArthur. The patient was thirty-six years of age. He was operated upon June, 1903, and at the present time is well. Of the others, five out of seven had died, one of them within two weeks after operation. One improved materially after operation upon one kidney, but died within a week or ten days from acute uremia. Another patient lived for a few months, and then died from uremia. Two were alive, one of them having been operated upon only a few weeks ago. He said sufficient observations had now been made to justify the profession in accepting the conclusions drawn by Dr. Elliott.

Chronic Nephritis.—Dr. L. L. McArthur reported this case, in which he resorted to double decapsulation of the kidneys. Recovery from the operations was uneventful. The final conclusions applying to this case were (1) general condition much improved since operative interference. The element of time and two periods of absolute rest in bed for two weeks each were considered here as possible causative factors, while, on the other hand, be it noted, the patient for over a year before operations was under excellent medical care and given full benefit of diet, hygiene and change of climate.

(2) Distinct improvement in the quantity and quality of the urine secreted from the kidney first operated upon as compared with the unoperated kidney. (3) Improvement in quality and quantity of urine from both kidneys since the operations.

Dr. Alexander Hugh Ferguson said that surgeons should study their cases more carefully and find out what cases were suitable for this operation and those which were not. With an experience comprising over 20 operative cases, he put down the indications for surgical intervention in Bright's disease as follows: (1) He would decapsulate all cases of tender and floating kidneys, and suspend the kidney. He had made inquiries of 13 patients who had been operated upon for kidney trouble, and of this number all but three had been decapsulated, pointing out the fact that the kidney, after it had lost its mobility and interfered with the circulation, produced a low form of renal inflammation which under the microscope proved to be nephritis. (2) He had previously refused to operate upon cases of floating kidneys because there were marked evidences of Bright's disease, but now he considered it an indication for decapsulation. (3) Decapsulation of the kidney was indicated in nephritis itself. He detailed several cases, and expressed himself as believing that there was a legitimate field for renal decapsulation.

Dr. Emil Ries narrated an interesting case of hematuria in which he resorted to decapsulation. At a subsequent operation it became necessary to remove the kidney. The newly formed fibrous capsule along the kidney was about as thick as one's little finger. From the kidney removed over 600 sections were made. He had stained and examined every one of these sections, and among them there was but one anastomosis, and this was near a strip of connective tissue which followed the path made by him in the first operation with his finger, which he inserted into the pelvis of the kidney. Even this was not a direct anastomosis of kidney tissue, but of scar tissue to scar tissue, which was one of the smaller vessels in the capsule. The 600 sections were taken from numerous parts of the kidney. This proved conclusively that the theory of success of this operation (decapsulation), that it might be due to anastomoses forming, was incorrect. After mentioning five cases in which he had resorted to decapsulation of the kidney, he said he was skeptical as to the ultimate results of this operation.

Dr. R. B. Preble said his attention was first called to this subject by a report of two cases which Dr. Ferguson presented before the Chicago Academy of Medicine. At that time he objected on the ground that the cases were reported as symptomatically cured of Bright's disease. The expression symptomatically cured carried with it two implications: (1) The symptoms were there and were the result of the condition; (2) the symptoms disappeared after the operation. It also carried the further implication that the fundamental process which underlay the symptoms was not altered by decapsulation of the kidneys. The symptoms were merely relieved by it. The first case, as he recalled, reported was diagnosed clinically as probably a stone in the kidney, on account of pain in the back. The patient was operated upon; no stone was found; a portion of the kidney was removed, examined microscopically, and showed the microscopic appearance of chronic nephritis. The second case was a patient, who had had, at irregular intervals, elevation of temperature, which was interpreted as being due to infected kidney. Patient was operated on, and no pus was found. A section of the kidney was removed, and the same condition found as in case one. Dr. Preble pointed out in a very forcible manner that pain in the back was not a symptom of chronic Bright's disease, nor was elevation of temperature. These two cases, he said, formed the starting point that decapsulation had relieved these two patients of symptoms which were due to chronic Bright's disease. He said throughout the literature the word nephritis and chronic Bright's disease were used interchangeably. They were not identical terms. The difference between the two was clearly pointed out.

Dr. Arthur Dean Bevan, after reviewing Edebohls' first papers on the subject and pointing out how he had undertaken the operation of renal decapsulation, said he did not think the operation could be said to be the surgical treatment of Bright's disease, because, as a matter of fact, the great majority of surgeons throughout the United States and of the world had never accepted the operation as being a logical procedure. He ventured to say that nine-tenths of the surgeons, who were members of the American Surgical Association, had not accepted renal decapsulation as a logical operative procedure. While he thought credit should be given to Ferguson, Edebohls, and others for working out the problem, the time had come when the profession could safely say that stripping of the capsule as a treatment for Bright's disease was a complete failure, and should receive the stamp of disapproval of scientific men. Out of this work there had come some good, because it emphasized the importance of a class of cases in which another operation was of value, namely in cases of anuria, of essential kidney hematuria, in chronic pyelitis, with some nephritis, draining the kidney by a rapid nephrotomy was of a distinct value. It had effected a great many cures, and would accomplish more.

Dr. Randolph Brunson reported the case of a prominent physician, who presented all the classical symptoms of chronic Bright's disease. Ophthalmoscopic examination revealed typical albuminuric retinitis. After the patient had been treated for eight or ten months without any material improvement in his condition, renal decapsulation was advised as a last resort, reluctantly consented to by the patient, and double decapsulation was made. The patient fully recovered from the effects of the operation, but finally died of Bright's disease.

Dr. Joseph L. Miller said that any one who studied the statistics of Edebohls with a view to obtaining information as to the value of renal decapsulation immediately met with difficulty. The analyses and diagnoses were too indefinite to draw any conclusions as to the value of this operation in cases of nephritis. The profession needed a few cases, carefully studied before and after operation, to settle the question of the value of the procedure.

Dr. Gustav Kolischer thought Drs. Suker and Elliott had struck the keynote, that the value of renal decapsulation was not well established. It was very essential to make diagnoses based upon proper conceptions of pathology. The idea of suggesting decapsulation in a case of floating and tender kidney, or of excising a portion of the kidney, when there were no indications of nephritis, was based upon a wrong conception of the principles of inflammation, especially of renal tissue.

NEW YORK ACADEMY OF MEDICINE.

Section on Orthopedic Surgery.

Stated Meeting, held January 15, 1904.

The President, Homer Gibney, M.D., in the Chair.

Osteitis of the Left Hip and of Left Fourth Metacarpal Bone. Dr. W. R. Townsend presented this case. The patient was a boy who was first seen on December 19, 1902, at the Hospital for Ruptured and Crippled. The hip has been under treatment ever since

and is getting along nicely. One year ago a swelling appeared on the hand, disappearing after rest. No syphilitic history can be made out. Within the last few weeks the swelling has returned. An X-ray picture was taken three weeks ago, showing that the entire fourth metacarpal bone is involved, and that the disease is confined to that bone. In such a case the entire bone should be removed to prevent spreading of the disease rather than to wait and let it progress and extend to the other bones of the hand.

Typhoid Spine.—Dr. Townsend also presented this case. The patient, a boy aged fourteen years, was seen at the Ruptured and Crippled Hospital, November 23, 1903. Eight weeks prior to that time he had typhoid fever which lasted four weeks. At the end of the typhoid fever he was in fair physical condition. One week after the typhoid he developed pain and stiffness in the back which increased until when he came to the hospital he was bent over very much, suggesting a case of Pott's disease. The pain was not localized but extended up and down the spine. He had no pains in any other region. The patient's physical condition has materially improved since he began wearing a plaster jacket and he now feels so well he is anxious to get it off. Dr. Townsend said he would like to present very briefly the history of two other cases of typhoid spine which he had treated within the last year. The first patient was a girl of eleven years who, after typhoid, began to complain of pain in the spine, especially about the lumbar region. No kyphosis, no deformity whatever, but the entire spine was very stiff. The girl was markedly neurotic. The question was whether it was a typhoid spine or a neurosis. The previous history of typhoid inclined the speaker to that diagnosis—of the type to which Osler refers—a neurosis. Dr. V. P. Gibney, who also saw the case, agreed in the diagnosis. Under a brace she made a good recovery. The second patient was a man. Ten days after the typhoid he was in the Adirondacks recuperating, when he was seized with severe pain in the spine. His pain was so severe, he was moved with the greatest difficulty. Even the attempt to move him from side to side caused the most excruciating pain. He was not neurotic. His face indicated that he suffered intensely. No one vertebra was more prominent than the others; no one spot more painful than another. He complained of pains over the entire lumbar region. A brace was applied, but was kept on only a few moments, as it seemed to increase the discomfort produced by lying on his back. Codeine was given in the hope of quieting the pain and finally hypodermics of morphine were resorted to, and after a week the brace was re-applied and kept on. There was persistent pain over the pelvis on both sides between the hip-joint and the anterior superior spines. Nothing was ever found to account for it. These pains continued for three weeks or more, and persisted after pain in the spine had ceased. No disease of the hip-joint was ever made out, no abscess, neuritis, or anything except that he insisted on the fact that he had intense pain there. Under the use of the brace and rest in bed for six weeks, he entirely recovered. The man now walks about the house, but is very thin and feeble. Does not require a cane or any assistance in walking.

Dr. T. Halsted Myers, in the discussion, said he thought the typhoid spine case showed two characteristic points:—The extreme pain in these cases: He had, this fall, been obliged to chloroform a patient in order to put on a plaster jacket, and chloroform him again to take it off and replace the plaster. The second point was, the prompt recovery, often in one or two months.

Dr. Homer Gibney said he had seen a recent case of typhoid spine in which all the symptoms were referable to the cervical spine. Dr. Whitman had applied a short jacket with jury mast or chin support which elevated the chin, and that this case made an uninterrupted recovery. He had seen a number of cases in which the pain had been intense respond rapidly to cautery and fixation.

Dr. R. Sayre said he had not seen many cases of typhoid spine, but had seen a certain number of them, and had at present a case of scarlatinal spine under observation. The patient, a boy, had been well until he had a severe attack of scarlet fever some three or four years ago. Following that he had nephritis which lasted for a number of months. Then he had what was supposed to be rheumatism in various parts of the body, finally located in the back. When seen by Dr. Sayre, it was discovered that he had large intra-abdominal abscesses and a slight kyphosis. All of these apparently dated from his scarlet fever. Abscesses subsequently opened in one iliac fossa and in the opposite thigh.

Congenital Deformity of the Neck Resembling Torticollis.—Dr. Sayre presented this case. The patient had a certain amount of pain in her neck which ran down toward her arms. Her mother thought deformity had increased somewhat. Examination of the case was extremely difficult by X-ray, as the ear was drawn so close to the shoulder as to make it hard to insert the plate. The plates made were not very satisfactory. When the child's head was well bent to one side, one felt some very hard, solid substance down in the neck, which is either a very long transverse process or else possibly some supernumerary ribs. The distance was very much shorter than it should be between the ears and neck, and the X-ray showed that the upper vertebræ had coalesced.

Dr. J. R. Hunt said he would like to ask how Dr. Sayre excluded an extreme degree of congenital torticollis. The right sternocleidomastoid muscle was practically atrophied, representing only a tendinous cord. The other muscles of the right cervical region were also tense. There was an extreme asymmetry of the face, so often an accompaniment of this condition. Curvature of the spine and rotation of the cervical vertebra would be a natural and inevitable result. Furthermore the skiagrams demonstrated the absence of cervical ribs. The long prominences palpable in the side of the neck would be sufficiently accounted for by subluxation and rotation of the vertebræ, allowing an abnormal projection of the transverse processes.

Dr R. Whitman said that he had seen a case recently very similar to that shown by Dr. Sayre, particularly the same short thick neck with the growth of hair in the median line; the torticollis was less marked. He would suggest as an explanation that the malformation was an incomplete cervical spina bifida, the vertebra being expanded laterally as well as otherwise destroyed. The torticollis was of course an incidental effect of the underlying malformation.

Dr. Sayre said when he first glanced at the patient, he thought it was an ordinary case of torticollis. As soon as he felt the neck, he saw it was not the usual kind of torticollis. There was atrophy of the muscles on one side of the neck and an unilateral lack of development of the face it is true, but in addition to these features, there were bony growths not found in ordinary torticollis. There was great distortion of the upper ribs not found in such cases and there was more rigidity in the neck than that due to shortened muscles —rigidity due to improper movement of the cervical vertebræ. Apparently some of the upper vertebræ have

coalesced. They do not present the ordinary picture of cervical vertebræ. It was an extremely difficult case to examine, on account of the short distance between the ear and shoulder. The child's condition has improved during the past month. It is not practicable to do anything more at present than to give a suspension apparatus and have the child placed in a chair with the head stretched out a reasonable time each day. The child could not be suspended long at a time. It had been suspended a moderate amount, with the neck stretched out, to see if a better skiagraph could not be made after the yielding of the muscles. On a closer view of the anteroposterior skiagraph it looks as if the spinous processes possibly had not coalesced, simply had that appearance from the hunching up of the angle of the ribs on the posterior side. The spinous processes may have been twisted and that might be one of the hard things felt on the side. As to the mane on the back; that is often seen in spina bifida occulta, as is mentioned by the German and French authors. He had seen it but seldom. A boy with lateral curvature, under observation at present, has an extremely heavy mane.

Syphilitic Joint Disease.—Dr. Myers presented this case. H. S., fourteen years old. No family history of tuberculosis or syphilis obtainable. Child had an ozena for four years; fistulæ leading to carious bone in nose two years, and in left elbow one and one-half years. Later, an abscess appeared in parotid region and seven months ago without injury, the left knee became swollen. There was some heat, a little pain at night only, no redness. On admission to St. Luke's Hospital, December 4, 1903, the circumference of the left knee was two inches larger than the right; fluid in the joint and induration about it, with noticeable enlargement of tibial shaft, though it was one-eighth inch short. Marked muscular atrophy of thigh. Flexion from 175 to 80 degrees. No spasm. No pain. Skiagraph showed marked enlargement of tibia and radius and lower end of the humerus, all on left side. A marked keratitis was present and thought by Dr. Cutler to be of specific origin. Specific treatment was instituted at once and the change in the child's condition is remarkable. The swelling of the knee has almost entirely subsided, and the motion increased proportionately. The sinuses in nose and elbow are closing fast and the corneal opacities are less. A tuberculin test January 13, gave a slight transitory reaction which was not considered of diagnostic value.

Pott's Disease.—Dr. H. L. Taylor presented a case of this disorder in which the principal interest consisted in comparing the man's present condition with his condition about five years ago when shown to this section. The man had suffered at that time for several months from excruciating pain in the lower part of the spine and flanks; the pain was so severe he could scarcely move, there was stiffness and very marked cachexia, but no kyphosis. A jacket was applied once or twice but he would not keep it on, saying he could not stand it. It was thought at the time that the man had carcinoma of the spine. He had been admitted to the hospital, but had only remained a short time, and had not returned for treatment. After an absence of five years, the patient appears with a well-developed kyphosis, much bowed over, but in fair health and able to get about. He is satisfied with his state and will wear no brace or jacket, but the disease, which is undoubtedly tuberculosis of the spine, is still progressing. He has a rupture and also a small sinus connected with the sternum which came soon after the spinal symptoms. It is a case of tuberculosis of the lower dorsal and lumbar spine, with unusually severe and long-continued pains, and is shown as being of interest in connection with the early diagnosis.

Dr. Homer Gibney said that comparatively few cases of such late development of Pott's disease were seen. He thought the man needed support around the abdominal and upper thoracic region. Cases he had seen recently were made comfortable by means of a spinal support made of flexible steel with pelvic and abdominal belt and counter shoulder straps. It would be very difficult to put an apparatus on the man on account of the disease, which was active, as evidenced by the sinuses leading up to the ribs and sternum on the left side.

Dr. Sayre said that Dr. Taylor had mentioned that the man objected to various kinds of support, refusing to have it applied. In such cases Dr. Sayre had found an appliance of which Dr. Schapps had spoken some years ago—a pelvic belt with two uprights in front, attached to a small plate which rested against the sternum—a prop for the front of the body. A man on crutches leaned against such a brace, much as our great grandmothers leaned against what they called a busk put in front of the corset.

Cervicodorsal Pott's Disease with the Application of a Gas-pipe Frame.—Dr. Homer Gibney presented this case. Dr. Downs had examined the case at the New York Hospital Dispensary. The child was thought to have some bulbar symptoms. Soon after birth could not use left arm and hand (probably slight birth paralysis) which rapidly improved under massage and manipulation. Kyphosis not present at this time. Upon examination of the case he found all of the neurological symptoms due to the development of the disease at the cervicodorsal junction. He thought the method of treatment would be of interest, and he would apply the apparatus, which is simply a rectangular gas-pipe frame to which the child is fastened by an abdominal apron. The angle at which one wishes to place the child is then adjusted to suit the conditions. The clothing is made to button in the back over the frame. The child and frame may be placed in a convenient chair in the sunlight by the window and the patient is soon transformed from an irritable, suffering child to at least a most comfortable position in which the deformity in many cases diminishes noticeably.

Snapping Knee.—Dr. Homer Gibney also presented this case. The patient had first applied for relief for a weak ankle resulting from an old fracture on the left side. He had also complained of some pain in the right knee. On examination the left foot was found in slight valgus and the evidences of an old fracture—a very good result. The knee, on right side, when extended forcibly, made a sharp noise, or snapped. The patient seemed rather proud of this accomplishment and said, after sitting long in one position, it gave him relief to snap his knee. This slipping of the quadriceps extensor tendon is to be considered infrequent in adults.

Dr. Taylor said he wished to say a word or two in commendation of the frame shown, which was not used as much as it should be, though far superior for certain cases to jackets, braces and plaster beds. Dr. Whitman had narrowed the frame, making it very light, so that it can be modeled over the edge of a table to the form required, and with the addition of the pads on either side of the spinous processes, it is an exceedingly efficient and useful appliance, worthy of more extended use than it has received, especially for children of two years or under, who have no hips to support a jacket or brace, and who are much better off lying down than walking about.

JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Stated Meeting, held February 1, 1904.

Scleroderma.—Dr. E. K. Cullen showed this case; the patient was a girl aged fourteen years. Her first complaint had been burning of the back of the left shoulder. Two years ago she had struck her shoulder, but without bruising it, and ever since has had attacks of pain after slight blows in this region. In April, 1903, a whitish patch with a red border appeared over the left scapula and in August this became a patch of typical scleroderma. Its border was formed by a plexus of vessels. The thyroid was palpable. The patient was put on thyroid extract and the skin has been getting softer ever since; the change being noticed chiefly in the center of the lesion. The pain, however, has been getting more severe and less drawing and burning in character. Sensation and blood are both normal. The thyroid treatment has been kept up continuously since the onset with the exception of two weeks, when it was stopped on account of pain for which acetanilid and salol were given without success. The patient's health has been perfect, there have been no unfavorable symptoms and the scleroderma is now gone. The etiology of scleroderma is unknown, but it affects chiefly women and there is often neurotic history. The circumscribed form affects chiefly the skin and leaves muscular action unimpaired. The prognosis is more favorable than in the acute form. Thyroid and suprarenal extracts, together with baths and electrolysis, have been the chief means of treatment.

Dr. Osler said that this case was unusual in its favorable course. Since 1892 19 cases of scleroderma have occurred in the Johns Hopkins Hospital, only two of which were local. The diffuse form is the most appalling disease we know, but between the two forms there is a middle group much like the disease recently described by Gowers as local panatrophy. Two of the diffuse cases were arrested on thyroid treatment.

Myelogenous Leucemia.—Dr. Campbell reported this case, in which the spleen and the leucocytes returned to normal. The patient first complained of pain below the left rib and a good deal of weakness. Her blood count showed anemia with a leucocytosis of 350,000; many myelocytes being present. She was put on large doses of Fowler's solution and in three weeks the leucocytes had fallen to 4,000. The blood picture showed many normoblasts, but the presence of myelocytes and the clinical symptoms all pointed to leucemia. The condition improved remarkably under treatment, and on May 4, 1903, the spleen (which had originally reached the umbilicus), was just palpable, and the blood picture was practically normal. In October the patient's weight had increased much, her color was good, her spleen could not be felt, but there was some suggestion of arsenical neuritis. A recent blood count showed no myelocytes. There are 4 cases in the literature showing improvement under treatment, with various measures, and it is a question whether this case can be considered cured by the arsenic, but there is no doubt about her wonderful improvement. Dr. Osler said that three cases of this disease have occurred in the Johns Hopkins Hospital, in which the leucemia disappeared under treatment, but in only one of these did the spleen become inpalpable.

Loco Disease.—Dr. Marshall read a paper on the loco disease as seen in the West. The condition affects chiefly horses and shows itself as attacks like acute mania. A horse previously gentle will suddenly, without apparent cause, become quite unmanageable and do odd things. The disease is chronic, the animal emaciates and usually dies from cachexia. For sheep, cows and other animals the symptoms are less constant and show themselves in weakness, tremor and stiffness of gait. The disease was first described in Mexico and a little later in Texas and California. It occurs from Texas to Montana, and from California to Kansas. The cowboys claim that the disease is caused by a weed of the wild pea family. It occurs usually in young animals. Dr. Marshall autopsied 15 sheep affected with a severe form of this disease. In all but two of them he found intestinal parasites, and his work led him to believe that these parasites may have something to do with the cause of the disease, particularly as the condition shows a seasonal variation very similar to that observed in other parasitic diseases. The loco disease is therefore probably not due at all to eating the loco weed, but is a name under which many diseases are included, some, if not all, of them, probably parasitic. The ranchers experience great loss from this condition, and the question as to the nature of the disease is an important economical problem.

Pneumonia in Diabetes.—Dr. Futcher reviewed this subject, it being suggested by a recent case in which, with the usual symptoms of diabetes, there was an acute and fatal pneumonia with all the physical signs, but without cough, expectoration or chill. Out of 134 cases of diabetes at the Johns Hopkins Hospital three have had lobar pneumonia—all fatal. The disease is, therefore, comparatively rare, but it is very acute and fatal and often insidious. Dr. Smith reported a case of diabetes with coma in which pneumonia developed, and though the case was regarded as hopeless, the patient got perfectly well.

BOOK REVIEWS.

AMERICAN TEXT-BOOK OF SURGERY. Edited by Drs. W. W. KEEN and J. W. WIGHT. Fourth edition, 8vo, 1363 pages. Illustrated. W. B. Saunders & Co., Philadelphia, New York and London.

THIS is the fourth edition of this work and we are told that at least 40,000 copies have been disposed of. We can readily account for this popularity, as the work comprises so many features of practical value. We can only add to our previous encomiums of this work that the present edition has been brought thoroughly up to date by the addition of much new matter particularly bearing on surgery of the nervous system, the spinal cord, on surgical bacteriology, tumors, and orthopedic work.

Six new chapters appear in this edition. Military Surgery is contributed by Surgeon-General Riley, Naval Surgery by Surgeon-General Rixey. Dr. Chas. F. Kieffer contributes a chapter on Tropical Surgery; Drs. Cabot and Stone write chapters on Examination of Blood in Surgery, and Immunity respectively.

The work is thoroughly comprehensive and interesting, beautifully illustrated and from all points of view is a model volume.

TEXT-BOOK OF DISEASES OF THE EYE FOR STUDENTS AND PRACTITIONERS OF MEDICINE. By HOWARD F. HANSELL, A.M., M.D., and WILLIAM M. SWEET, M.D., with chapters by Christian R. Holmes, M.D., Casey A. Wood, M.D., D.C.L., and Wendell Reber, M.D. P. Blakiston's Son & Co., Philadelphia.

THIS book is admirable in many respects, and may be recommended as a useful source of information for students and those beginning the practice of ophthalmology, and for general practitioners who have not the time to consult the larger treatises; it is distinctly a happy medium.

The authors have devoted less space than is usual to refraction and to the rarer external diseases and conditions in general which are not amenable to treatment, and the practical utility of the book is thereby enhanced.

The authors acknowledge their indebtedness to other standard works on the eye, and realizing that no one can be best in all subjects, they have shared their task with others. The chapters on diseases of the lacrimal apparatus and the ocular symptoms in general diseases, especially prove the wisdom of this subdivision. The book is well indexed, and the publishers' work is admirable, the illustrations being far superior to those generally seen. The only exception that may be taken to this statement is that the binding offers a very small promise of durability.

Wathen's Epitome of Histology. A Manual for Students and Physicians. By John R. Wathen, A.M., M.D., Professor of Surgery, etc., formerly Professor of Histology and Pathology, Kentucky School of Medicine, Louisville, Ky. 12mo, 220 pages, 114 illustrations. Lea Brothers & Co., Philadelphia and New York.

The author of this little volume has given us something new in the way of compends, in that he has departed from the catechetical method and has made his book a readable one—an uncommon quality, as quiz compends go. The treatment of the subject is approached both from the embryological and pathological side, thereby adding to its comprehensiveness and interest. There is a logical arrangement of short chapters, with questions at the end of each, printed in large, clear type, with a judicious use of black letter headings and italics. When possible, cuts of gross specimens show where the microscopical sections come from, and the book lies open flat upon the knee or table—two very noteworthy points. The section on bone development, the students' bugbear, is especially clear; and the homologies of male and female genitals are shown at a glance. One might wish that the fiber tracts in brain and cord were more fully described, and that the Graafian follicles were traced in their development; but aside from these the book is one of which any author might well feel proud. The student who reads this manual carefully and thoughtfully need have no fear of a conditional examination in histology.

The Story of New Zealand. A History of New Zealand from the Earliest Times to the Present, with Special Reference to the Political, Industrial and Social Development of the Island's Commonwealth, including Industrial Evolution dating from 1870, the Political Revolution of 1890, the Cause and Consequences, and the General Movement of Events Throughout the Four Periods of New Zealand History. By Professor Frank Parsons, Ph.D., of the American Academy of Political and Social Science; Director Department of History in the Bureau of Economic Research, Washington, D. C., etc.

This is one of the volumes of the Equity Series edited and published by Dr. C. F. Taylor, the editor of the *Medical World* of Philadelphia. Among other volumes of the series are "The City for the People," "Direct Legislation," "The Telegraph Monopoly," "Rational Money and the Bondage of Cities," all by Professor Parsons, and "The Organization and Control of Industrial Corporations," by Frank Horack. All of them contain valuable information on subjects that are of present-day political interest. This present volume is a résumé of what has been done in New Zealand by legislation in order to make life more livable for all classes.

There are many chapters in it of special interest to medical men. Those on the Factory Laws, on Old Age Pensions, on the Labor Problem, and Certain Phases of Labor Legislation contain an immense amount of suggestive material which is not merely theory, but is the result of actual experimental observation in New Zealand.

Most people know that New Zealand has attempted to accomplish by means of legislation many reforms that are usually considered ideal rather than practical. Somewhat like the use of small animals in the laboratory for experimental demonstrations, it seems to be not inappropriate that little New Zealand should thus have offered herself as an example of how certain supposedly Utopian theories work out in practice. It must be said that many of the experiments have given successful results where this might not have been expected. The whole character of the legislative movement in New Zealand, however, will have to work itself out further before the decision can be read. Meantime Professor Parsons' book gives an excellent idea of what has been attempted with perhaps a little too favorable recognition of the results, for as yet time is needed properly to appreciate what the ultimate consequences of the movement in New Zealand will be.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

The Story of New Zealand. By Dr. Frank Parsons. 8vo, 840 pages. Illustrated. C. F. Taylor, Philadelphia.

Diseases of the Eye. By Dr. L. Webster Fox. 8vo, 584 pages. Illustrated. D. Appleton & Co., New York and London

Social Diseases and Marriage. By Dr. Prince A. Morrow. 8vo, 390 pages. Lea Brothers & Co., New York and Philadelphia.

Transactions of the American Gynecological Society. Volume 28. 8vo, 343 pages. Illustrated. W. J. Dornan, Philadelphia.

Bacteriology of Milk. By Drs. H. Swithinbank and Geo. Newman. 8vo, 605 pages. Illustrated. E. P. Dutton & Co., New York.

Transactions of the National Association of United States Pension Examining Surgeons. Vol. 1. 8vo, 215 pages. Rochester, N. Y.

Treatment of Neurasthenia. By Drs. A. Proust and G. Ballet. Translated by Dr. P. C. Smith. 12mo, 213 pages. E. R. Pelton Co., New York.

The Lymphatics. By Drs. G. Delemare, Poirier and B. Cuneo. Translated by Dr. Cecil H. Leaf. 301 pages. Illustrated. W. T. Keener & Co., Chicago.

A Manual of Operative Surgery. By Sir Frederick Treves. Volume 2. 8vo, 822 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

Mammalian Anatomy, with Especial Reference to the Cat. By Dr. A. Davison. 8vo, 250 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

Special Report on Diseases of the Horse. United States Department of Agriculture Reports. Revised edition. Government Printing Office, Washington, D. C.

The Four Epochs in a Woman's Life. By Dr. A. L. Galbraith. Second edition. 8vo, 244 pages. W. B. Saunders & Co., New York, Philadelphia and London.

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ORIGINAL ARTICLES.

THE PATHOLOGICAL ANATOMY OF SHIGA BACILLUS INFECTION OF THE INTESTINES IN INFANTS.

BY JOHN HOWLAND, M.D.,

OF NEW YORK;

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THE bacillus of dysentery (Shiga) first proved by Shiga[1] to be the cause of the epidemic dysentery of Japan, has been shown by the work of Flexner, Kruse, Müller, Drycke and others to stand in direct causal relation to the dysenteries epidemic, endemic and sporadic of the tropical and temperate zones, and its etiological importance is now universally recognized.

The pathological lesions in adults induced by infection with this bacillus were briefly stated by Shiga[2] to be more superficial than those caused by the *Amœba coli*, and he noticed that while the mesenteric glands were regularly enlarged the spleen, unless some complication was present, was unaffected.

Flexner[3] reports briefly the autopsies of three cases in Manila, the lesions consisting in swelling, congestion, and hemorrhage into the mucous membrane with slight exudation on to the surface in one case and very small ulcerations in another. He states that histologically "the changes appear in the mucous membrane, submucosa and muscularis, being most marked in the former situations. Those of the mucous membrane consist of coagulative necrosis with exudation of fibrin and polymorphonuclear cells. . . . The pseudomembrane is a close-meshed network of fibrin enclosing multinuclear, often fragmented cells. . . . The submucosa is always much altered. . . . Here are found hemorrhages of variable size, while in the interstices of the tissue, some fibrin appears. More marked, however, are cellular accumulations which are present, not uniformly, but in irregular areas. . . . The character of the cellular exudate is quite uniform. Excluding the red blood cells the new cells consist chiefly of plasma cells. . . . In the submucosa, infiltration, hemorrhage and fibrin formation take place also beneath an intact or almost intact mucous membrane. . . . The muscular coat shows only hemorrhages. . . . The peritoneal tunic is usually unaltered."

He emphasizes the fact that the polymorphonuclear leucocytes play a very insignificant rôle in the process of infiltration of the submucosa, whereas in the affected mucous membrane they are much in evidence. The bacteria were abundant in the fibrinous exudation on the mucous membrane and in the necrotic tissue; he could not find them in the unaffected tissue and believed the changes in the submucosa to be toxic in origin.

Strong and Musgrave[4] give a summary of the changes observed in many autopsies performed by them in Manila. They found the changes mostly in the large intestine but extending usually for a variable distance into the ileum. The whole wall of the intestine was thickened. The superficial part of the mucosa was necrotic and usually hemorrhages were found beneath this. The solitary follicles were swollen and red. In the very acute cases no definite ulceration was observed but only a general superficial necrosis of the mucosa. Microscopically there was necrosis of the mucous membrane with distension of the blood vessels and extravasation of blood. An extensive cellular infiltration of the mucosa was the rule and there were hemorrhages into the submucosa and edema of the same. Plasma cells were increased especially around the blood vessels. Edema was found even in the muscular coats. The mesenteric glands were uniformly much enlarged. Bacilli of typhoid colon form and staining properties were found in the mucosa, and cocci often mixed with them and though the latter were only superficially situated the bacilli were found sometimes not only in the mucosa but all through the areolar tissue, the muscularis mucosæ and submucosa down to the muscular coats. In the other organs were no constant changes. No mention is made of fibrin.

Duval and Bassett[5] in a preliminary paper first pointed out the relationship between the *Bacillus dysenteriæ* (Shiga) and the summer diarrheas of infants. They reported 42 positive cases.

Wollstein[6] reports the finding of the bacilli in 39 cases of infantile diarrhea occurring during the winter months out of 114 studied, but many of the negative cases were normal children and in all cases having blood and mucus in the stools the bacilli were present.

Numerous other cases in addition have been reported and the *Bacillus dysenteriæ* (Shiga) is now generally accepted as the cause of the majority of the various forms of diarrhea in children.

The apparent discrepancies in the different types of cultures obtained from various sources have partly disappeared in the light of the observations of Martini[7] and Lenz[8] who showed by reactions and cultural characteristics that there are at least two types of this organism known to us as the true Shiga (not fermenting mannite) and the Harris or Flexner-Manila (fermenting mannite). The latter of these is the type chiefly found connected with infantile diarrhea in New York, according to Wollstein, only one of her positive cases being of the true Shiga type.

Gay and Duval[9] have recently reported three cases in adults in which both types of the organism were found, in one case the acid or Harris type predominating, in another the alkaline or true Shiga type predominating and in a third the number of positive tubes being approximately the same. No cases of double infection in infants have as yet been reported. (This statement was true at the time that this was written but since then at least six cases of double infection in infants have been found.)

The autopsies whose findings I wish to report took place at the New York Foundling Hospital, the Babies' Hospital and the Nursery and Child's Hospital. The organism was proved to be present in the great majority of cases by an examination of the stools but in seven cases it was obtained post mortem by scraping the mucous membrane of the colon and in three cases it was obtained both ante mortem and post mortem.

The organisms found in all these cases corresponded in all particulars to the type known as the "acid" or "Harris" or "Flexner-Manila" organism, that is, it did not ferment glucose, saccharose or lactose but did split mannite with acid formation. It produced an early acidity in milk with a subsequent alkalinity and agglutinated with the "Harris" serum in high dilutions.

The autopsies were obtained as soon as possible after death the pieces of the organs placed in equal parts of 95 per cent. alcohol and 10 per cent. formalin. After from one to three days they were transferred to alcohol and mounted and cut in paraffin. The staining was done with hæmalaun and eosin, sections for bacteria were stained by the Gram-Weigert method and for those negative to Gram with borax-blue and differentiated with one-half per cent. acetic acid. The Weigert stain for fibrin was used to demonstrate fibrin.

The first 17 cases were winter cases occurring between November 1 and April 15, and the last 15 summer cases between May 1 and September 1. There seems to be no difference in the histological findings due to the time of year. From a study of these cases it seems that they fall with considerable accuracy into several different groups, according to the histological findings and with the description of each group I report a typical case.

Group A comprises five cases and represents the most severe changes met with which are more like those found by Flexner and Strong in the adult dysenteries of Manila than any I have to report. The following is a well-marked case:

Case I.—T. W., five months old; was admitted to hospital suffering from intestinal indigestion. During the first month he improved very much and gained some weight, then got up diarrhea and began to lose weight. A day or two afterward, the first trace of blood appeared in the stools, only small in amount, but coincident with this, a rise in temperature from 99° to 103° F., and it remained high, sometimes up to 104° F., till his death eight days later. Stools toward the last showed no blood whatever, but were yellowish-green with some mucus. Toward the end there was considerable abdominal rigidity and tympanites. The *Bacillus dysenteriæ* was obtained by culture from scrapings of the intestinal mucosa.

Autopsy.—Liver greatly congested with fatty infiltration; kidneys congested and degenerated; spleen congested; hypostatic pneumonia in both lungs; peritoneal cavity contained cloudy serum. Between the loops of intestine there are some delicate bits of fibrin. There is no marked injection of the vessels and the peritoneum has lost only in part its normal shining appearance. Stomach normal. Small intestine appears normal except for slight swelling of Peyer's patches and solitary follicles. Large intestine shows extensive changes, more marked at the lower end. The wall of the sigmoid and rectum is very much thickened. In the cecum the mucous membrane has lost its normal smooth appearance interspersed with granular areas and marked congestion. In the sigmoid and rectum the mucous membrane is covered with a grayish pseudomembrane that strips off with difficulty, taking with it all structures down to the very much thickened submucosa. Mesenteric glands moderately swollen and congested.

Microscopical. The surface epithelium of the small intestine is partially denuded. The mucous membrane excepting Peyer's patches is apparently normal. Peyer's patches are moderately swollen; there being a moderate hyperplasia of the lymphoid cells only. No necrosis of cells. Submucosa and muscularis normal. Sections of the large intestine show a diffuse necrosis of the mucosa varying in intensity, in some places only the superficial edge is necrotic in other places the necrosis extends through the entire depth and as far as the muscularis mucosæ. All the parts of the mucosa are affected though the Lieberkühnian glands suffer especially. The blood vessels are either injected or closed by means of pink thrombi. These thrombi show little or no fibrin and would appear to be made up of coalesced red blood corpuscles. The surface is not covered with a definite membrane, the necrotic tissue adheres to the subjacent living tissues in general, occasionally it is lifted up and gives the impression of being a pseudomembrane. At the line of junction of the living and dead tissue there is an invasion of the latter by polymorphonuclear cells and there is a general increase of the cells in the mucosa. Nuclear fragmentation is not abundant. The solitary follicles show a somewhat more marked hyperplasia than in the small intestine, the centers showing endothelial proliferation. The mucosa is deficient over the follicles. The submucosa is edematous and contains a greatly increased number of mononuclear cells with eccentric nuclei some of which are plasma cells. The muscular coat except for the fibrous septa which show an increased number of mononuclear cells is normal. There is a massive bacterial development in the necrotic mucosa

and extension of bacteria a certain distance into the adjacent living mucosa. The bacteria consist of forms staining with Gram and decolorizing by Gram; among these are cocci and innumerable bacilli. The invading organisms also consist of cocci and bacilli among which are forms having the colon-typhoid morphology. Cultures from this case gave colon bacilli from the peritoneum and all the organs while, in addition, the *Bacillus dysenteriæ* was obtained from the intestinal contents.

In these cases the change is a pseudomembranous one though the membrane is by no means continuous but of irregular distribution; in two cases however, it is very extensive. This pseudomembrane is composed chiefly of necrotic tissue, desquamated cells and countless bacteria. Fibrin plays in it a very small part, two of the cases and those the most intense showing none at all. There is necrosis of the mucosa in all these cases and it is this which chiefly gives the appearance of a false membrane but the necrosis does not extend beyond this coat. In this necrotic tissue and at its border there are hemorrhages and thromboses and it is divided from the healthy tissue by a zone of mono- and polynuclear cell infiltration.

The submucosa in four of the cases of this group is much affected, it is swollen both from edema and from cellular infiltration. This infiltration is composed of mononuclear cells many with the eccentric nuclei characteristic of Unna's plasma cells and is found most marked about the blood vessels. The submucosa in the fifth case is unaffected. The muscular coat is spared except for a slight mononuclear cell infiltration along the fibrous septa in one case and the peritoneal coat is normal save in the case of peritonitis.

It is interesting to note in this connection that though such cases in adults run as a rule very acute courses one of these children lived eighteen and two, twenty-one days after the bacillus was isolated from the stools while the other cases survived only six and eight days after the stools contained mucus or blood.

Two cases were so called "terminal infections" occurring in nephritis and measles respectively, the latter being also complicated by an intercurrent diphtheria.

In Group B, comprising four cases, we find a different picture. Here the mucous membrane in both small and large intestines is in general in a good state of preservation, it is the lymphoid elements that suffer. The following is a characteristic case:

Case II.—B. F., age nine months, twenty-seven days, brought to the hospital in bad condition with diarrhea and without any accurate previous history. Was very emaciated, had meningeal symptoms, stiff neck, irregular pupils and internal strabismus. Stools most of the time were yellow occasionally green with a trace of blood, two to five a day. Temperature at first below 100° F., rising irregularly till death at 104°. The bacillus of dysentery was isolated three days before death. Length of illness in hospital, fourteen days.

Autopsy.—A very much emaciated child; lungs edematous; liver very fatty; stomach normal; upper part of small intestine normal. In the lower two feet the Peyer's patches are enlarged with small superficial ulcerations over them and the mucous membrane appears a little thickened. In the large intestines there is congestion most marked in the neighborhood of the ileocecal valve. The solitary follicles are dimpled. The changes are slight in the descending colon and sigmoid. The mesenteric glands are slightly enlarged.

Microscopical. Small intestine. General mucosa shows little alteration. As the confines of the swollen lymphoid nodules are approached the villi are swollen and rendered more obtuse by an increase of the lymphoid cells. The lymphoid masses are markedly enlarged, the new cells being of the lymphoid habitus. From the center of the mass there is a funnel-shaped depression in which the lymphoid cells often stain poorly and over which the mucosa is imperfect. The submucosa and muscle show no striking alteration. A. Colon: The mucous membrane of the large intestine shows in general no striking change but the solitary nodules are enlarged in a manner similar to that described in the small intestine and over them the epithelial layer is deficient. Bacteria of any form or staining properties are few in number.

In three cases, both small and large intestines were involved in the process, in the fourth only the colon. The change consists in a hyperplasia of the lymph follicles both agminated and solitary, and this hyperplasia is lymphoid in three of the cases and endothelioid in the fourth. The elements of these follicles show a tendency to invade the surrounding tissue. Over these follicles there is a deficiency of the epithelium and more or less excavation of the follicles themselves, causing the well known "dimpling." The submucosa was in all cases approximately normal nor did the muscular or peritoneal coats show any change.

The Case of Park and Carey,[10] the only autopsy in an infant suffering from undoubted Shiga infection that I have been able to find reported up to this time, evidently belongs to this group the lesions being chiefly in the solitary follicles. Of this group three of the cases were known to have been ill for fourteen days or over and the fourth had diarrhea for only five days but before this his stools were green and rather numerous and had not been examined so that it is possible that the bacillus was present for a longer time. These changes are what one would expect in subacute cases with a more delayed termination and as mentioned above this is true of three of the cases at least and possibly of the fourth.

Group C includes those cases characterized by superficial necrosis and ulceration in the mucous membrane not limited to the follicles as in Group B, and not accompanied by the formation of a pseudomembrane as in Group A. Of this group

there are five examples. One of these is as follows:

Case III.—J. S., seven months twenty-four days; a well-nourished child began to be ill acutely with temperature 103°F. rising in twenty-four hours to 104.5° F. Stools at first brown and loose two to four a day. The temperature then dropped to normal and after three days stools were normal for twenty-four hours. Following this a rise of temperature to 103° F. and stools became frequent and green with mucus and blood. Death five days later despite the injection of 10 c.c. of "Harris" and 10 c.c. of "Seward" serum. Temperature for the last three days 100° to 102° F. The Shiga organism was isolated from the stools five days before death and was also found post mortem from the scrapings of the mucous membrane of the colon.

Autopsy.—Slight congestion in the lower lobes of lungs; liver fatty; spleen small and firm; stomach normal; lower six inches of small intestine were slightly congested; the large intestine was congested and in places there were small hemorrhages into the mucosa. The mucous membrane, especially near the ileocecal valve presented very small superficial yellowish areas of apparent necrosis.

Microscopically, the small intestine was practically normal; the large intestine, throughout its whole extent presented congestion, in the sections from the neighborhood of the ileocecal valve the blood vessels of the mucosa and submucosa were enormously dilated, in the former situation there were actual hemorrhages. There were small areas near the hemorrhages whose cells stained poorly and there was actual, although superficial, loss of substance. There was considerable inflammatory reaction around these areas. The submucosa was much infiltrated with mononuclear cells, especially in the superficial portion. The muscularis was normal. In other parts of the colon the pathological changes were less marked.

Bacteria: Cocci and bacilli positive and negative to Gram were found in great numbers in the neighborhood of the necrotic portions. No especial type seemed to predominate.

The changes in these cases consist in congestion and hemorrhage into the mucosa with necrosis of isolated portions of the mucous membrane which necrotic portion may be exfoliated so as to form ulcerations on the surface. The necrotic area and ulcerations are usually surrounded by a zone of inflammatory reaction. The lymphatic tissue shows more or less participation in the process. The submucosa escapes with the exception of one case where it shows a cellular infiltration. The other coats are unaffected.

Two of these cases were very acute, lasting but two and eight days respectively while the others ran a course of about two weeks.

The Group D, embracing those cases that show microscopically but few discoverable lesions, is a large one, numbering 14 cases. The following is a typical case:

Case IV.—J. W., two months old; admitted to hospital March 25 with pneumonia. Died April 3. He had one to three yellow and green stools a day, no mucus and no blood. Temperature before death for two days 98°-100° F. Five days before death no Shiga bacilli; two days before death the bacilli were isolated.

Autopsy.—Lungs typical and very marked bronchopneumonia; spleen was large, dark-red and soft; liver and kidneys were degenerated; stomach normal. Small intestine.—There were congested Peyer's patches and the solitary follicles were pigmented and presented typical "shaven-beard" appearance most marked low down. The large intestine was slightly congested and the follicles prominent.

Microscopically: Ileum.—The solitary follicles and Peyer's patches were a little enlarged from an increase of the lymphoid cells; except for this, the appearance was normal. Large intestine: The mucous membrane was in an excellent condition of preservation. The follicles were slightly swollen, but no other changes. Bacteria.—These are very few and very superficial. Spleen is much congested with hyperplasia of the pulp.

Several facts may contribute to account for the paucity of the pathological findings. I have not considered the loss of the superficial epithelium as a pathological lesion and have only regarded loss of substance as true and not an artifact when it has been surrounded by a definite reactionary zone. The autopsies in most of the cases unfortunately could not be obtained immediately after death as they should be to draw any conclusions from the condition of the superficial epithelium and loss of substance occurs so easily that in order not to arrive at any false conclusions this plan was adopted. It is possible that autopsies obtained a few minutes after death will allow of some deductions in regard to the epithelial coating.

Then, too, the microscope fails to help us very much in the vascular changes in the mucosa on account of the various procedures to which the tissue has to be subjected in the course of hardening and for this reason the macroscopic examination probably gives us a truer conception of the amount of congestion.

And lastly five cases of this group were terminal infections occurring in children suffering from serious and even fatal diseases and others were almost entirely in badly nourished institutional infants to whose marasmus the infection with the Shiga bacillus was terminal. The infection was of a comparatively short duration and their reaction undoubtedly poor. Beyond congestion, moderate hyperplasia of the lymphoid tissue and in one case a little cellular infiltration of the superficial portion of the submucosa there was very slight histological change.

One case presents lesions quite distinct from any of the others. The ulcerations were very deep and were in the process of repair, death being due to marasmus after all intestinal symptoms had ceased and the Shiga bacillus had disappeared

from the stools, nor could it be found post mortem by scraping the mucosa.

The description of this case is as follows:

Case V.—J. R., fifteen months; had suffered for months previous from malnutrition and vomiting. Admitted at the age of ten months. Weight seven pounds and fifteen ounces. Improved slowly and one month later was taking food well and gaining in weight; then vomiting and loss of weight though the stools were normal. Three months after admission the stools became loose, four to six a day, no blood but later a little mucus and undigested food. This condition persisted for a long time and twenty-nine days after the beginning of the diarrhea the *Bacillus dysenteriæ* (Shiga) was obtained from the stools. Two days later the bacillus was no longer found and at the autopsy three weeks later it could not be recovered by scraping the mucous membrane of the colon. The child failed constantly and died in a condition of extreme marasmus weighing but six pounds four ounces.

Autopsy.—Lungs congested; liver small and dark; spleen dark red, follicles prominent; stomach and duodenum normal; Jejunum shows two small ulcers; Ileum.—Peyer's patches slightly swollen and a few small ulcers were present in them. Colon.—Here were many ulcers extending through the mucosa and even down to the muscular coat but the peritoneal surface was quite smooth everywhere. The ulcers were irregularly oval or round with raised edges and were not limited to the solitary follicles which were not enlarged.

Microscopical: In the small intestine the ulcers are relatively superficial and involve the layer of the crypts but do not extend through the mucosa. The base consists of granulation tissue diffusely spread out extending beyond the limits of the ulcer and invading the adjacent mucous membrane, the crypts of which are widely separated and also invading at a distance the submucosa. The muscular coat escapes. In the large intestine the chief lesion is an ulcerative one affecting the mucous membrane and to a marked extent the submucosa. The ulcer is clear, the base of it consisting of granulation tissue in a state of advanced formation. The superficial edges of the ulcers present a reticulated appearance due to a superficial necrosis of the granulation tissue in which fibrin and degenerated mononuclear cells are contained. Where the glands were retained many had become dilated so as to form small cysts. The spleen is interesting in showing a marked endothelial transformation of the germinal centers of the Malpighian bodies. Bacteria.—Very few cocci and bacilli found on the surface of the ulcers as well as in the mucous membrane.

Two cases could not be classed with any of the groups owing to their unsatisfactory microscopical examinations while one case is worthy of special mention, though presenting practically no abnormal change on account of the fact that it was a case that had recovered completely from the infection to fall a victim later to pneumonia.

From the foregoing it will be noticed that the severe cases are decidedly in the minority. The lesions occur with the greatest frequency in the mucosa of the colon and the lower few inches of the ileum, those in the colon being usually much more intense and extensive. The pseudomembrane in one case, however, is confined entirely to the small intestine, the ulcerations in one case were confined entirely to the small intestine, and one case, although only a little of the ileum was affected, showed its most intense process there. Though the submucosa is at times affected there is no considerable change in this unless the mucosa has suffered severely. Only in the most intense inflammations does the muscular coat show participation in the process and then very slightly while the peritoneum escapes, the case with general peritonitis being an exception.

As far as the other organs are concerned there were no characteristic findings. The mesenteric glands are usually somewhat enlarged, rarely markedly so, and grayish or pinkish. The lungs show hypostatic congestion and small areas of bronchopneumonia unless the Shiga infection is secondary to some more pronounced pulmonary lesion. The liver is fatty in about the same percentage as in other infantile conditions. The spleen is, ordinarily, unaffected but when some other infection is added presents the ordinary characteristics common in infectious diseases. The kidneys show, as a rule, cloudy swelling.

In eight cases cultures were made from all the organs at autopsy but in no case was the bacillus found except in the intestinal tract. The tubes from the organs when transplanted in small quantity, except the lungs where many different organisms were found, either remained sterile or showed a growth of colon bacilli. In one case the liver gave streptococci. This negative bacteriological finding is the characteristic one in adults though cases of a general blood infection are reported. The method advised by Flexner of plating considerable quantities of tissue by which he was able to demonstrate the presence of bacilli in the liver and mesenteric glands was not employed.

An examination for microorganisms gives no very definite results. An innumerable host of bacteria, cocci and bacilli, are present in the pseudomembrane and in the necrotic tissues; in the center of these masses they were about equally distributed, but one receives the impression that, in the tissue surrounding the bacilli of the colon-typhoid morphology and staining properties predominate, but it is of course impossible to say that these are all Shiga bacilli. In the milder grades of inflammation the organisms of any kind are few in number, very superficially situated and no particular type predominates. In this series of cases the organisms invaded the submucosa in only one case.

In an examination for bacteria in the sections, my findings agree more nearly with those of

Flexner[3] in adult cases, who found a general admixture of organisms on the surface of and in the mucosa with a submucosa uninvaded, rather than with those of Strong and Musgrave[4] who found organisms not only in the mucosa but all through the areolar tissue, muscularis mucosæ and submucosa down to the muscular coat.

It is interesting at this time to compare somewhat in detail the pathological findings in these cases with those observed by Flexner,[3] and Strong and Musgrave[4] in Manila, the specific germ being the same. When we do this we find that only one of these groups (A) is comparable in any way with their cases though this bears many striking resemblances to the Manila cases. There is a pseudomembrane composed of necrotic tissue, emigrated and desquamated cells and myriads of bacteria. Flexner lays great stress on the fibrin in this pseudomembrane, while Strong and Musgrave do not mention its presence. A moderate amount of fibrin was found in some but not in all of my cases. The submucosa is much affected according to these observers and this was my observation and the changes were the same, but Flexner speaks of much fibrin formation in this coat as well as hemorrhages, the former of which Strong and Musgrave do not mention, nor did I find fibrin or hemorrhages in this situation save in one case where hemorrhage continuous with that in the mucosa was found. Flexner also says that the submucosa may be affected with an intact or, almost intact, mucous membrane while in many cases when the submucosa participated in the process, it was only when the mucous membrane was greatly damaged. Flexner does not speak of but Strong and Musgrave mention subacute cases with hyperplasia of the solitary follicles and superficial erosions which suggests my group (B) with the follicular excavations. The other varieties which I have described find no prototypes in the published reports of Manila cases.

The foregoing report shows unmistakably that cases of Shiga bacillus infection exhibit most diverse pathological anatomy. The gross and microscopical changes of the extremes of these cases are so different that at first sight it would seem scarcely probable that they are caused by the same microorganism. There are indeed many considerations which must be taken into account before a final opinion is passed upon the question as to what extent the lesions found are to be ascribed to the action of this bacillus.

It seems to me that in discussing this point, which is among the most important of all, we can not afford to disregard the facts of clinical observation. A moment's reflection on the clinical course of the diarrheas of infants brings forcibly to our attention the common observation that some cases are extremely mild and respond almost immediately to ordinary therapeutic measures. In conformity with this fact it can be stated on the basis of my observations that a large percentage of fatal cases fails to show evidence of profound structural lesions. In view of the slight nature of these lesions the question arises as to what extent the infection is to be conceived as a cause of death in infants. As regards this question, it may be said immediately that among these cases a percentage must be looked upon as intercurrent or so-called "terminal" infections in children already debilitated by previous disease, whereas in the remainder the very fact that the children are institutional children in a very depreciated state of health must be considered. It seems, therefore, to me that these slighter grades of infection in more vigorous infants are the ones possibly which respond so promptly to remedial measures.

In considering the severe lesions, particularly the ulcerative ones, the question immediately arises as to what extent the entire process is to be regarded as due to the Shiga bacillus. We are here confronted with the identical problem that has to be considered in dealing with similar infection in adults and thus far it has not been possible to separate sharply the damage done by the Shiga bacillus and that which is subsequently done by the whole host of microorganisms pyogenic and others normally contained in the intestinal tract. This much may be said, the evidence is in favor of the belief that the primary necrotic lesion is the result of the action of the bacillus of dysentery, the subsequent ulceration being brought about not improbably by the interaction of various microorganisms and the ordinary processes of demarcating inflammation. Beyond this point it does not seem possible to distinguish the action of the various microorganisms in the intestines.

The lesions in the intestines in children as in adults must for the present be conceived to be of two kinds, first those due to the action of the dysentery bacillus as already explained and second of toxic products of this and perhaps other organisms as is shown by the lesions of the submucosa and elsewhere among which the microorganisms have not been discovered. In this regard there is a conformity in the condition found in children and in adults.

It is important to take cognizance of the fact that after all, in my cases, the lesions found were not usually typical pseudomembranous inflammations, the pseudomembrane appeared either on the surface of ulcers or as isolated areas upon the mucous surface of the gut. In this regard the changes in children seem to be in contrast to those thus far described in adults. But a still further distinction is found in the much more common involvement of the solitary and agminated lymphatic structures in children, the same structures in adults usually escaping participation in the pathological process.

If we endeavor to sum up the case as is here made out for the Shiga bacillus we shall have to say, as it seems to me, that there are comprised under the lesions associated with it all grades and types of diarrheal disease as distinguished by clinical symptoms and pathological findings and that it can be affirmed that no particular type is

distinguished from the others by a special etiological origin.

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THE UTILIZATION OF THE LOWER LIP IN RHINOPLASTY. A NEW PROCEDURE.*

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IN this patient, a woman aged fifty-five years, I tried a method of repairing a nasal defect, which, as far as my knowledge goes, has not been attempted before, viz., to utilize part of the lower lip and chin for restoring the lost tissues of the left side of the nose.

The patient suffered from epithelioma, the microscopical corroboration of the diagnosis being furnished by Dr. Henry T. Brooks. As indicated by the scars on the forehead and cheek, she had been the object of previous rhinoplastic efforts,

Fig. 1.

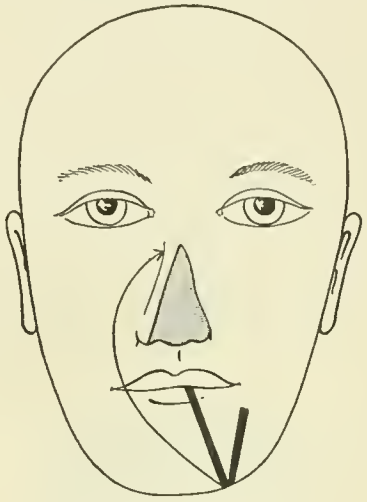
Defect caused by recurrent epithelioma.

which appeared to have been entirely successful at the time they were made, about three years ago. When I first saw the patient, now two years ago, the disease had recurred and nothing was left of the transplanted flaps. As the previous operations had left no available tissue in the immediate vicinity of the diseased area, I resorted to the Italian method, taking a large flap from the left arm. Although considerable shrinking took place, agglutination became perfect, and no loss of substance was noted.

During last summer there was another recurrence, the destruction this time being more extensive, the mucous membrane of the left nostril being completely exposed, as shown in Fig. 1.

If I had not feared to impair the agglutinating tendency of the tissues by irradiation, which creates such unfavorable conditions for subsequent plastic operations, I would have resorted

Fig. 2.



Outlining of the flap.

to Roentgen treatment. But the experience of others, as well as my own, induced me to look for another plan, the modus operandi being as follows:

After outlining a triangular flap, the lower lip was divided in its whole thickness from a little over an inch from the left angle of the mouth downwards to the chin (Fig. 2). The flap-formation was finished by dissecting upward to the angle of the mouth, stopping about one-half of an

Fig. 3.

Appearance of flap two days after operation (the black surface above the upper lip indicates the non-united wound margin of the flap).

inch below in order to obtain a suitable bridge. The tip of the triangular flap was then turned around and sewed to the margins of the nasal defect, after extensive exsection of the epitheliomatous area. The upper portion of the flap could be well approximated and fastened with silk

* Case presented to the Surgical Section of the Academy of Medicine, January 8, 1904.

sutures. A part of the flap had to be left free, as is shown by the black sphere overlying the upper lip (Fig. 3).

No drainage tube was introduced into the left nostril at that time because I feared that this would produce undue pressure upon this part of the flap, which was simply dusted with iodoform. The gap of the lower lip, caused by the exsection of the flap, was closed by directly uniting the margins through their whole thickness with stout silk-sutures.

After a week two-thirds of the flap was severed, and four days afterward the remainder of the pedicle.

As the illustration shows, there was a small gangrenous area in the integument at the tip of the flap, while the mucous membrane remained unimpaired over its whole extent.

The ala nasi consists now of the margin of the lower lip. It may be amenable to further correction as soon as the skin formation over the

Fig. 4.

Appearance three weeks after operation.

granulating spot is perfect, when I will begin the prophylactic Roentgen treatment.

The advantages of this procedure seem to me to lie especially in the possibility of supplying throughout the whole area of the defect a mucous membrane which would restore normal conditions as far as possible. The broad wound-surfaces and the fact that the flap need not be larger than the defect because no shrinkage is to be expected, are another favorable element. How far it will influence the tendency to recurrence remains to be seen; still I presume that the conditions are more favorable now than previously. Fig. 4 shows the result three weeks after the operation.

Composition of Muscles in Polyneuritis.—In a case of polyneuritis after influenza, T. Rumpf (Deutsch. Arch. f. klin. Med., Vol. 79, Nos. 1 and 2) found the fat considerably increased in the degenerated muscles. The amount of water was reduced, but if estimated for muscle freed from fat, there was a slight increase. Other chemical changes were a reduction of nitrogen, an increase of chloride of sodium and a diminution of potassium and sodium. An analysis of the fat disclosed fatty acids which are not usually found in the human body but which occur normally in butter.

A SIMPLE AND INEXPENSIVE RHEOSTAT TO USE WITH THE ELECTRIC LIGHT CURRENT.

BY DAVID T. MARSHALL, M.D.,
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A simple and inexpensive contrivance to enable one to use the ordinary 110-volt direct electric light current for therapeutic purposes may be made as follows:

A board about 2x1 foot is well painted and varnished on both sides. To this is fastened nine keyless and one key wall-receptacles. These are wired in series, *i.e.*, so that the current will pass through each one successively. The terminal wires are brought around to two binding posts. Wires running to binding posts are connected to *one side only* of each of the ten receptacles.

When the electric light current is connected by means of a flexible lamp-cord to the two terminals of the series of receptacles, a 16-candle power 110-volt lamp having been screwed into each receptacle, a current of a much reduced volume over what would flow through a single lamp will traverse the circuit, but it will still have a pressure of 110 volts. This of course is too high a pressure for one to endure long, if good sponge contacts are secured.

By connecting the sponges to the binding posts wired to the receptacles a current of voltages increasing by steps from 16 to 110 may be secured If smaller steps are desired, more lamps must be put in series. This arrangement gives a continuous direct current.

To obtain a *direct vibratory* current, a buzzer or call-bell movement must be connected in *multiple* with the circuit. If the electromagnet of the buzzer is of too low resistance to be put on a 110-volt circuit then it will be necessary to introduce sufficient resistance in series with the magnets to give them the right amount of current so that they will work without heating. This can be done by the amateur with the least danger of making mistakes by disjoining the wires where they are twisted together at the ends of the coils and inserting one or more lamps in series with the coils (Fig. 1).

The buzzer with the resistance lamps in circuit

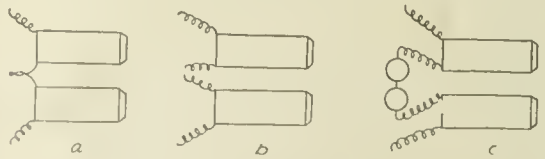

Fig. 1

is then connected in *multiple* with the lamps on the board, as shown in Fig. 3.

This arrangement gives an intermittent or vibratory direct current, the rapidity of the vibrations depending on the character of the armature, strength of spring, strength of current, adjustment of contact screw, etc. The current for the sponges is taken from the binding posts connected to the lamps 1, 2, 3, etc. These contacts

may, for convenience, be brought down to a contact switch, as in Fig. 2.

When a direct non-vibrating current is desired, all that it is necessary to do is to turn up the adjusting screw at A, Fig. 3, until the armature is too firmly pressed upon to vibrate. A better way still is to insert a wooden wedge between the armature and the magnets. This saves the trouble of adjusting the screw when it is again desired to use the vibrator.

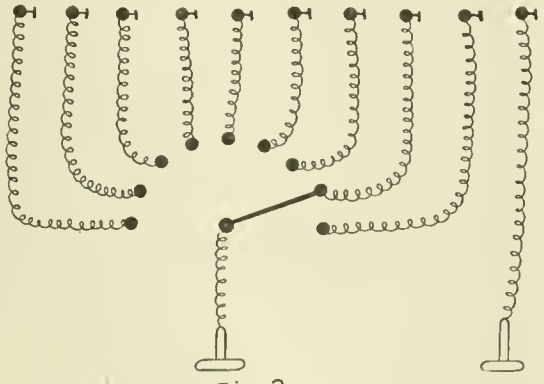

Fig. 2.

When the vibrator, with or without resistance lamps in circuit, is used, the voltage of the current traversing the lamps 1, 2, 3, etc., is reduced. Supposing the resistance of vibrator and resistance-lamp to be that of an ordinary 16-candle power 110-volt lamp, *i.e.*, about 250 ohms; then the current over lamps 1, 2, 3, etc., will have an electromotive force of about 50 volts, and the current from the binding posts 1, 2, 3, etc., will increase by steps of about 5.5 volts up to 50 volts. With twenty lamps the steps would be half as high. Variations of five volts

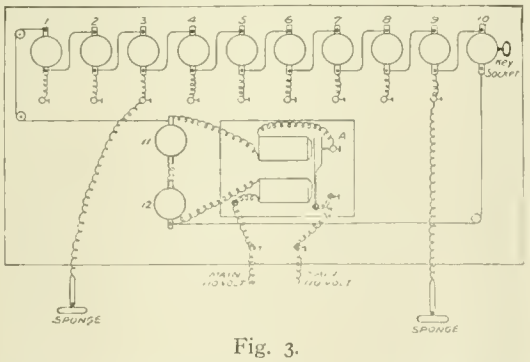

Fig. 3.

are small enough. Few people care to take continuous currents through from one hand to the other of more than 30 volts. When the current vibrates, much less than that is uncomfortable.

In this apparatus no mention is made of a milliampèremeter. A milliampèremeter may be put in circuit with the sponge wires, but for most purposes, so long as you know that you are well within the limits of safety, the sensations of the patient are a sufficient guide.

The amount of current which will traverse the sponge wires when shortcircuited between any two binding posts may be easily calculated from the formula $C = \frac{E}{R}$, the value of R being for each 16-candlepower lamp about 250 ohms.

When contacts are made on various parts of the human body the value of R may be, even with good sponge contacts, as much as 8,000 or 10,000 ohms in addition to the 250 ohms of each 16-candlepower lamp in series.

Thus if E=50 volts and R=250+8,000 (lamp +human body) C would equal $\frac{E}{R}$ =.006 ampère or 6 milliampères—an amount of current which is easily borne.

Excluding cost of labor, the cost of such an apparatus, including two yards of silk-covered lamp cord and an attachment plug, may be less than $6. Materials with retail prices in New York are given herewith:

12 16-c.p. 110-Volt Edison Base Lamps, at 14c.	$1.68
11 Porc. Ed. Base keyless receptacle, at 6c.	.66
1 ditto key, at 20c.	.20
4 No. 5½ Porc. Knobs, at ½c.	.02
10 Single Screw Binding Posts, at 6c.	.60
1 I.B. Buzzer for use on 110-Volt circuit, at $1.00.	1.00
6 feet No. 18 Office Wire, at 1c. per foot.	.06
5 feet No. 18 N.C. Silk Lamp Cord, at 8c. per yard	.40
1 Attachment Plug, at 11c.	.11
6 inches Lamp Fuse Wire	.15
1 board 1 x 2 feet	.25
2 dozen wood screws	.05
	$5.18

33 West Twelfth Street.

TRAUMATIC PYELO-PARANEPHRIC CYST.*

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The facts of the case are as follows: The patient is a male, fifteen years of age, and was always perfectly well and sound up to his twelfth year, except for an attack of scarlet fever when very young. Parents perfectly healthy. Some time during his twelfth year, while shoveling snow he was struck in the abdomen by the handle of the shovel, which necessitated confinement to bed for several days. After that time and until two weeks before admission to hospital, March 28, 1902, his health was good, except for a more or less continuous pain in the right side of abdomen.

Two weeks previous to admission, while attempting to jump on to a shed, the patient fell, his abdomen striking with considerable force on the edge of the roof of the shed. His condition required that he be carried home and put to bed, where he remained four or five days with nausea and vomiting during the first forty-eight hours, and with blood in his urine. The hematuria disappeared on the third day. After five days the patient could get around the house, but abdominal pain persisted.

* Read before the New York Surgical Society, December 23, 1903.

On date of admission, abdominal pain was intense, urine analysis was negative, general condition poor, and a small swelling was noticed in the right side of the abdomen on a level with the umbilicus. This swelling was dull on percussion; no record of further examination of this swelling, or of temperature, was obtainable.

With hot local applications, etc., the condition became better until about the middle of April, when pain became intense, accompanied by abdominal distention.

An incision was then made over and down to the swelling, followed by incision into the same, which evacuated over a quart of bloody fluid containing several large blood-clots, while partial examination of the wall of the swelling showed it to be very thick and extending inward toward the kidney. A general diagnosis of cyst was therefore clear. The edges of the sac were then sutured to the edges of the abdominal incision and a tube inserted. The bloody fluid according to pathologist's report contained "no urine."

From that time until just before I first saw the case in September, 1902, the patient's general condition improved; and the wound and cyst-cavity contracted until a regular sinus was formed. The sinus formation was complete in about six weeks after the incision, and remained stationary from then until September, in spite of local stimulating injections. During this period, urine flowed freely from the sinus; and repeated examinations were negative except for the presence of a fairly large number of leucocytes. Drainage tube had been removed permanently since the middle of July.

From about August 15 until October 1, however, there developed a series of "attacks," three or four in number, each attack consisting of high temperature (104° to 105° F.); some delirium; pain and tenderness in and around the sinus, but no swelling; and cessation of flow of urine from the sinus. Each attack lasted about two days and yielded readily to cathartics and introduction of a drainage-tube and irrigation, when the flow of urine would be resumed. On recovery, patient's general condition was a little worse each time. It was therefore decided to explore the sinus with the idea of removing the cyst wall. The operation was performed October 3, 1902.

A word more as to the urine. During an "attack," as just stated, no urine came through the sinus (suppression ?), but the urine from the bladder was uninfluenced thereby, both in quality and quantity, the latter having become almost as much as if both kidneys were normal. The amount of urine from the sinus was, between "attacks," a little less than normal each day. This precluded any necessity for finding out the condition of the other kidney should nephrectomy of the kidney on the side of the sinus be decided upon.

The operation proved to be difficult and tedious. A careful dissection (1) showed that the sinus ran into a large cavity; and (2) isolated enough of the cyst-wall of the latter for an accurate diagnosis of the actual conditions, accompanied as it was by a wide opening up of the orifice of the sinus.

The conditions found are indicated in the title. Thus: the cyst-wall, thick and dense connective-tissue, was closely adherent to the surrounding paranephric tissue, beginning right at the orifice of the sinus, the partial isolating just referred to being followed constantly by profuse venous hemorrhage. Tracing this wall in toward the kidney, the inner surface was also exposed and found to be covered by flabby granulations. These were scraped off and then it was plain by looking into the cavity that the cyst-wall extended to and into the renal sinus. In other words, there was direct continuity of tissue between the paranephric-tissue part of the cyst-wall and the renal-pelvic portion thereof. Therefore, there was a tear in the wall of the pelvis, and with each edge of the tear was connected a corresponding part of the paranephric cyst-wall. There was also considerable dilatation of the pelvis as a whole.

Hence, the cyst wall was partly pelvic and partly thick, condensed paranephric tissue, thus justifying the title, *pyelo-paranephric cyst.*

Further confirmation was obtained by observing and probing two infundibula whose orifices opened proximally into the cyst cavity; and also by finding the opening of the ureter from within the cyst. A probe was passed into the ureter, but could go readily no further than two or three inches, owing to thick granulation-tissue within the lumen of the tube. Although tough, the cyst-wall was fairly elastic and, excluding suppression, was probably stretched by accumulation of urine during the "attacks" previously mentioned. There were also found a few ridges running in all directions around the inner surface of the cyst-wall, which might have caused the obstruction to the out-flow of urine also mentioned as one of the phenomena of the "attacks." At all events, no other cause for this obstruction could be found.

These conditions, although serious, did not seem in themselves bad enough to account for the high temperature and delirium occurring in the "attacks," because the thickness of the cyst-wall was apparently sufficient to prevent any absorption of toxins or bacteria. This being so, one naturally would think of the kidney as causing these symptoms as the site either of a nephritis with bacteria and bacterial toxins, or of a condition in which toxins (non-bacterial) were being elaborated by faulty metabolism of the kidney-cells, the general condition then being an auto-intoxication rather than a septicemia or toxemia as it would be if the local condition were nephritis.

The kidney was therefore partially exposed; and one or two small but deep incisions into it were followed only by blood. As no pus was found in the cavity of the cyst, this showed the probability of the nephritis being in the form of small foci of pus; since it seemed that the nephritis must be suppurative because of the severity of the general symptoms. The kidney

could be palpated and was soft and large. Realizing that if small foci of pus were present, the other kidney might also be similarly affected, it was nevertheless felt that nephrectomy should be done, because of the progressive impairment of the patient's general health, and because the other kidney had shown absolutely no signs of any trouble at all.

Nephrectomy was accordingly performed. Many adhesions were found and much hemorrhage occurred. An attempt was made to take out the entire cyst-wall with the kidney, but was abandoned owing to adhesions and loss of blood. Therefore, the kidney being now free, was removed, together with its adrenal body, the cyst-wall being cut right across at about its connection with the pelvic wall. Some two inches or so of the ureter below and outside of the cyst-wall were exposed and removed. There was now left in the wound only a good bit of the adherent original cyst-wall. The piece of ureter removed showed granulation tissue throughout; and the kidney, on being split, showed multiple pus foci but almost of microscopic size. The pathologist confirmed the diagnosis and also excluded tuberculosis both renal and ureteral. Any share in the cyst-formation on the part of the kidney or "adrenal," was also positively excluded. Most of the wound was sutured, a drain of gauze being inserted where cyst-wall was left.

Uneventful recovery except for wound. Thus: Some six or eight weeks after operation the patient was in perfect health and had gained ten or twelve pounds. Locally, however, the wound had become a sinus with the usual small amount of seropurulent discharge. It showed no signs of healing in spite of the usual stimulating injections. A week later a piece of silk ligature came away. Still no advance for another week. Ether was then given, the sinus laid open freely, and, as suspected, the remains of the cyst-wall was found just as large and tough as at the end of the first operation. Although hemorrhage was profuse, there was no reason (the patient being in good condition) for stopping the operation and leaving any of this cyst-wall behind; so it was all dissected off and the wound partially sutured and partially packed with gauze. The patient was out of bed in three days, and the wound solidly healed at the end of two or three weeks.

Of course the interesting, and probably unusual, aspect of this cyst is not that its wall was "paranephric"—paranephric cysts being fairly common—but that the paranephric part was so closely connected with the renal pelvis that there was not only a cavity in common, but also a continuous cyst-wall, first of paranephric tissue and then of the pelvic wall. Just how unusual this condition may be I have been unable to find out; but that it is certainly uncommon may be inferred from as much of the literature as I have been able to look up (see bibliography at end of article). The cause of the cyst, judging from the history and findings, was undoubtedly traumatism. The research into the literature—for most of which I wish to express my thanks to Dr. J. F. McCarthy, of this city, while not exhaustive, was thorough, and resulted in finding mention of many pathologic cysts, renal or paranephric; of a few similar traumatic cysts; but no mention at all of pyelo-paranephric cysts, either of pathological or traumatic origin.

An attempt will now be made to assign the cyst to its proper place among cysts in general and cysts of the "kidney region." Hence, a short review is necessary of *cysts in general* and "renal cysts" (the last expression being used generically to express all cysts in the "kidney region," that is, cysts of the kidney, of the adrenal body, of the pelvis of the kidney and of the paranephric tissue).

Beginning with *cysts in general,* there are three main classes: [*A*] Truly neoplastic cysts, that is, cysts which are really neoplasms, often called *cystomata;* [*B*] parasitic cysts; and [*C*] cysts which are neither neoplastic nor parasitic. Cysts in the "kidney region" have, of course, the same classification.

[*A*] *Cystomata* or neoplastic cysts: These are being considered more and more in connection with true solid neoplasms with which they have far more in common both structurally and in etiology, than they have with "cysts." The structure of their walls, including that of the lining, is often quite complicated, so much so that the wall alone of a cystoma is almost, if not quite, identical with the structure of a solid neoplasm, thus differing entirely from the simple fibrous membrane of ordinary cysts or of the cyst which is the subject of this paper; while the contents is usually found to be made up of cell-elements mixed in with fluid or semi-solid tissue, very different from "serum" or "blood" of ordinary cysts. Many cystomata are also multilocular.

Coming to the "kidney region," the cystomata are exceedingly complicated and their origin is only in the kidney or adrenal body, or both. This origin from the cells of the Wolffian body and other embryonic structures and from inclusions of "adrenal rests," shows their complicated nature. We may therefore, safely exclude our cyst from the category of cystomata, especially of the kidney or "adrenal," if for no other reason than because no such findings resulted from the removal and examination of these structures.

[*B*] *Parasitic cysts:* This class needs only to be mentioned to be excluded from consideration. Even in the "kidney region," the kidney, "adrenal" and ureter are out of the question, as the result of the operation shows. There remains the paranephric-tissue in which there may develop parasitic cysts; but the cyst under description is certainly not of that kind.

[*C*] *Cysts which are neither neoplastic* nor *parasitic:* There are many varieties described, the chief difference between them seeming to be in many cases etiological rather than structural. The subdivisions generally accepted are: (1) Glandular retention cysts; (2) cysts in preexisting spaces other than the alveoli of glands; and

(3) cysts of new-formation or those occurring where there are no preexisting spaces.

1. Glandular retention cysts: From the nature and history of the case, these may be excluded; especially those of the kidney and "adrenal;" nor could the cyst have started as a "retention cyst" of one of the minute glands in the wall of the pelvis. There are no glandular retention cysts of the paranephric tissue, that is, primary ones.

2. Cysts in "preexisting spaces other than alveoli of glands": Among these are: Distended bursæ; ganglia (of tendon sheaths); hydrocele; and hematocele; all comprising the "transudation cysts" of some authors. There should be added: dilated lymphatics (often called simple serous cysts or hygromata); and dilated blood-vessels or "blood-cysts"; the last named not to be confounded with angioma (a neoplasm), or hematoma (a cyst of new formation); nor the serous cysts, with lymphatoma (a cyst of new formation), or lymphangiectasis (a neoplasm).

Referring to the "kidney region," and excluding "kidney" and "adrenal," there are the renal pelvis and paranephric-tissue, either of which may be the site of these cysts. Taking first the renal pelvis: The "preexisting space other than alveoli of glands" would be the cavity itself of the pelvis. A cyst developing here might grow without involving kidney or ureter; or it might remain stationary; or it might involve the kidney or ureter; or its contents might break through the pelvic wall. Comparison with the cyst under discussion shows that a portion of it, *i.e.,* the part whose wall is renal pelvis, is identical with these cysts; or, in other words, is a cyst occurring in a "preexisting space other than alveoli of glands."

Regarding, in the next place, the paranephric-tissue: Part of the cyst occurred in this tissue. If it developed in a "preexisting space other than alveoli of glands" the "space" would have to be the lumen of lymphatics or blood-vessels which are in the paranephric tissue. Against this possibility, however, are several objections: First, these "lymphatic cysts" and "blood-cysts" are rarely if ever found in a region subjected to such a severe traumatism as we know was inflicted on the patient. Secondly, these "lymphatic cysts" and "blood-cysts" are so slow in growth and possessed comparatively speaking of such a delicate wall, that communication with the cavity of the renal pelvis through its tough, fibrous wall could not be established traumatically without a traumatism so severe as to destroy the delicate cyst-wall entirely. Furthermore, this statement implies the existence of the cyst prior to the injury; of which preexistence there is absolutely no evidence. Again, the cyst-wall actually found was as tough as the renal pelvis itself.

3. Cysts of new formation; or those occurring where there are no preexisting spaces. The capsule of these cysts is usually well defined and more or less distinct from the surrounding tissue. The contents is commonly "serum"; and if of long standing, it is often impossible to tell whether this "serum" was originally lymph or blood. Among these cysts are: hematoma; lymphatoma; a "cyst-wall" of thickened tissue enclosing a foreign body; and "cysts of degeneration." The last named may be found in tendons as a variety of ganglia (distinct from that in tendon-sheaths just mentioned); or as a direct sequela to a "productive inflammation," in which case they are often multiple and small ("cystic degeneration" of some authors); they also occur in the tissue of some solid neoplasms.

In the "kidney region:" Cysts of new formation in the kidney and "adrenal" may be absolutely excluded. In the pelvic wall have been recorded small cysts occurring from traumatism and containing blood; also cysts of degeneration. These may also be excluded.

In the *paranephric tissue,* on the other hand, "cysts of new formation" are fairly common as the result of severe traumatism, and may be lymphatomata, but are usually hematomata. When we consider the structure of such cysts and compare it with that of the cyst under consideration, it would seem certain that the latter, that is the larger part of it, is a "cyst of new formation" in the paranephric tissue.

Having now placed this cyst in *two* subdivisions of cysts "which are neither neoplastic nor parasitic," a probably correct explanation of its method of formation may be had from a consideration of the etiology and method of formation of these cysts; especially since we know of the close relation of traumatism to our cyst. Thus:

In the etiology of "cysts occurring in preexisting spaces other than alveoli of glands" and of "cysts of new formation," traumatism is the most important factor, either as a predisposing cause or as a direct or exciting cause.

This statement, apparently simple, may, however, lead to misapprehension; hence the following brief elaboration: Cysts of these two subdivisions, when due to traumatism, are either recent or not. If *recent,* the contents (blood, serum or traumatic edema) is *directly caused* by the traumatism; but the capsule, as such, has not yet formed; and the "limiting wall" is simply the wall of the "space" (stretched or torn as the case may be), or the surrounding tissue (if no "space" existed). In this stage the cyst is not complete in that it has no capsule of its own.

If the cyst is *not recent,* its own capsule has had time to form, the formation consisting of a thickening of the tissue immediately around the contents, and a differentiation, more or less complete, of the same from the more remotely surrounding tissue; all this especially well marked in "cysts of new formation." This thickening, due to irritation from the presence of the contents, is regarded by some pathologists as a "productive inflammation"; but by others, as a form of degeneration, *e.g.,* a "fibrosis." Furthermore, the contents also is apt to undergo changes, especially if blood (absorption of coloring matter, deposit of fibrin, etc.). Hence the traumatism, in these complete cysts, is predisposing, the exciting cause being the fluid first produced.

Referring now to the case described and comparing with what we know of it that which has just been outlined, we may assume: (1) that the first traumatism ruptured the pelvis of the kidney and also caused a hematoma both within the pelvic cavity and in the paranephric tissue; (2) that, as time went on, the blood was gradually absorbed, and the thickened capsule (extra-pelvic portion) of connective tissue was formed (as just described) from the paranephric tissue; (3) that the opening into the pelvis, however, remained, but the capsule (extra-pelvic portion) was strong enough to hold any urine that might come through and prevent its extravasation; and (4) that the second traumatism caused a fresh hematoma, partly by tearing the inner surface of the capsule, as indicated by the ridges referred to in the history, and partly by causing small lacerations of the kidney.

Hence, as already stated, in making the individual comparisons, we may repeat (1) that the cyst, or rather cyst-wall, having two parts, the one (pelvic portion) corresponds to that of cysts occurring in "preexisting spaces other than alveoli of glands," and the other (extra-pelvic portion) corresponds to that of "cysts of new formation"; (2) that, as regards the cyst as a whole, both portions make a common capsule enclosing a common cavity; and (3) that traumatism was the predisposing cause.

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ERGOT IN ALCOHOLISM, MORPHINISM, AND THE GENERAL CLASS OF DRUG HABIT CASES.

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Since the publication of my first paper on ergot therapy, so many inquiries have come to me for specific directions as to the treatment of the morphine habit (the case suggesting the inquiry, being, sometimes, the doctor himself) that I have concluded that a special paper on that subject will not now be out of place.

The habitual use of other opiates, alcoholic liquors, absinthe, chloral, cocaine, etc., produces similar trains of nervous symptoms and I therefore class all these poisons together in considering the therapeutic application of ergot to the conditions produced by any one of them.

Before considering the subject proper, I wish to place myself in antagonism to a theory widely promulgated by a few and thoughtlessly accepted by many. This theory regards the habitué as the subject of a specific disease which impels him to the habituation and specific names are given the so-called diseases, such as inebriety, morphinomania, etc., dependent upon the stimulus used by the habitué. The impulse to the use of, or the craving for, the particular stimulus, is classed as a symptom of that specific disease, as cough is a symptom of bronchitis, or pain a symptom of neuralgia. A logical sequence to this theory is the irresponsibility of the subject, as it would be manifestly irrational to chide the bronchitic for coughing, or the neuralgic for having a pain. I will not now go further into this matter than to say that while I deny *in toto* the existence of such specific diseases, I do not question that diseased states of the circulation, of the nervous system and of special organs result from the improper use or abuse of these stimuli. To present my ground in another way, I distinctly prefer the old-fashioned, conventional method of hitching the horse to the cart, rather than a method which places his head where his tail ought to be.

The most striking characteristic of an habitué who leaves off, or is forcibly deprived of his stimulant, is a disturbance or agitation of the nervous system proportionate to the per diem quantity of the stimulant that had been used. I have seen this agitation so extreme that, while continuously unconscious for twenty-four hours, the patient would at a bound throw herself from the dorsal recumbent position to the prone, and even from the middle of a wide bed to the floor, before the attendant with one hand upon her could interfere. Every muscle of the body seemed simultaneously active, and the sudden and combined action inexplicable. The sensory nerves were equally alert and especially along the spine was there extreme sensitiveness.

While the cerebrospinal system was so intensely agitated, the vasomotor system seemed paralyzed, with resultant intense hyperemia and sensation of heat to the hand. It was, of course,

not possible to take the temperature with a thermometer. The two things that were soothing in this case and that resulted in twenty-four hours in restoring consciousness and calm were ergot hypodermically and galvanization of the spine.

In less extreme cases (as in this one previous to the unconscious stage), there is mental irritability and frequent importunate demands for the stimulant that had been used, and nervous restlessness. It is this agitated state of the nervous system, the sense of restlessness within, a panicky search for relief, that suggests a renewed application of the drug that had, in fact, brought about this morbid impulse, though having, in its primary action, produced a perverted sense of comfort which is again sought for; a conclusion and determination as irrational and destructive as the persistent efforts of the winged insects that, seeking the light, finally fall into the flame and are consumed. And I wish here to put myself on record as protesting most earnestly against the too common practice of many medical men of using freely and inconsiderately as to results, and absolutely unnecessarily in most instances (or, if really indicated, unnecessary dosage and unnecessary repetition of dose), all this class of narcotic stimuli. It may seem a harsh and strong statement, but I believe it to be true, that the responsibility for the vast majority of these unfortunate cases rests upon those medical men who so inconsiderately and unnecessarily make free use of these baneful drugs. I say unnecessarily advisedly, for I have demonstrated to my entire satisfaction during the past twenty-six years that sleeplessness, pain and nervousness in the large majority of instances, may be more surely relieved by ergot than by the narcotic class of drugs.

My study of this class of cases and of nervous irritability and excitability in other classes, has led me to a positive conclusion that the nervous symptoms depend directly on a disturbance of the vascular system in the nerve centers and that the circulatory disturbance is due to paralysis of the sympathetic or vasomotor centers.

The logical conclusion is therefore that the prime indication is to tone the relaxed, dilated vessels and bring about as promptly as possible an equilibrium of the circulation. There are several methods by which this result may be wholly or partly secured:

1. Cold to the head and spine by means of ice-cap and spinal bag; or hot followed immediately by cold sponging of the spine, repeating these alternately half a dozen times or more, and such séance several times a day.

2. Galvanization of the chain of sympathetic ganglia by use of the hand electrodes, stroking from occiput to sacrum, the electrodes one on either side of the spine and separated about four inches from each other. The quantity of current should be 10 or 15 milliampères and continued for twenty minutes. This should be followed by similar applications of five minutes each over the upper, middle and lower cervical sympathetic ganglia; or the static current may be used and I particularly recommend a prolonged application of the static wave, half an hour or more, to the whole length of the spine with a spark gap of five to eight inches and this séance followed by sparking over the lines of the sympathetic ganglia.

3. Dry-cupping over the entire spine and including the sides of the neck, not with the old-fashioned alcohol cups, but with the modern valve-cups which are emptied by means of an air pump.

4. Massage, which, properly applied by a skilled masseur, is certainly of much service in stimulating the general circulation and, therefore, in relieving congested areas.

5. And last, but by no means the least, effective method, hypodermic injections of ergot. While the other methods may be effective, I present this one as the most certain and the most prompt in its action. I make this assurance not only upon many practical demonstrations but upon two grounds that I think will appeal to common sense and to reason.

First, because the rationale is correct. Disturbed function, whether of nerve centers, special organs or glands, is directly dependent on altered states of the circulation in them, especially as to the caliber of the blood vessels, a hyperemic state existing, due to the relaxed and stretched muscular coat. This condition can be thoroughly corrected only by so toning and strengthening that relaxed muscular tissue that it will contract and bring the vessels to their proper caliber, thus dispersing to other parts the excess of blood they had contained. Ergot contracts the sort of muscular tissue of which the muscular coat of the blood-vessels consists, but its most pronounced action is upon those areas of such tissues as are weak, relaxed and stretched, and, therefore, upon the dilated blood vessels. When the dilated vessels in any part have contracted, the disturbance of function which they had produced in that part ceases.

I have been charged with using ergot empirically. If the statements of this, or any other paper I have written upon ergot, smack of empiricism, I would be glad to have the fact pointed out.

Second, because the method of applying the remedy places it the most surely, wholly and promptly where alone it can act. I am so often asked if ergot may not be given per orem or per rectum for the purposes for which I recommend it. Of course it may; but there is only one way by which you may be sure that it will all get where it may act for your purpose, and that is by putting it directly into the circulation. The objections which have previously existed to the general use of ergot hypodermically have been practically removed during the past six months by the special efforts of a few pharmaceutical houses who have succeeded in producing solutions of ergot for hypodermic use which do not seriously hurt nor

cause local inflammation when properly injected with an aseptic syringe. It is so difficult for the physician to make his own solutions with assurance of their being absolutely sterile, that it is generally preferable for him to employ the best solutions made by pharmaceutical houses, which are now marketed in small and convenient containers.

It only remains for me to suggest a method of practical application of the principles laid down in treating an individual case.

I will first mention the method which I have been accustomed to use. The first step is to wholly and immediately discontinue the use of the narcotic and place conditions about the patient which will absolutely prohibit access to that drug, or to any other that would be regarded as a substitute. By this method I demonstrate the most clearly to the subject what he is loath to believe, viz.: that neither the drug he has been using, nor any other of similar effect, is necessary to him. I at once begin the application of ergot, because I know that within from twenty-four to thirty-six hours, there will begin, in the extreme cases, a violent reactionary stage, the basis of which will be a dilated state of the blood vessels in the nerve centers, which may be modified by the action of ergot upon their muscular coat. At the same time I give a mercurial purgative followed in a few hours by a sufficient saline to assure prompt purgation. This is desirable in order to limit or avoid the irritative effect of a loaded bowel upon an irritable and excited brain and cord; and also to prepare the digestive tract for especially good service during the coming exhausting ordeal. In preparation also against exhaustion, I discontinue the ordinary meals and give abundant fluid and easily digested nourishment every three hours, such as a good form of beef, and the best of which I know is a paste, consisting of the ordinary fluid extract to which has been added the desiccated and pulverized fibrin. This form is therefore not wholly soluble, the fibrin settling to the bottom if not constantly stirred. The whites of a couple of eggs dissolved in half a glass of cold water, to which a pinch of salt has been added, make another good three-hour-interim meal as do also some of the cereal or lactocereal preparations on the market. With the exception of the egg food it is better to give all these liquid foods quite warm or hot. Do not use nutritives prepared with alcohol. The bowels must be kept open at least once a day, better two or three times, and I prefer the fluid extract of *Rhamnus frangula* for this purpose, in doses of one or two drams at bed-time and perhaps also forenoon and afternoon. The frequency of application of the ergot will depend upon the degree of addiction, and upon the general condition of the subject when the drug was discontinued. The larger the daily dosage had been and the greater the nervous prostration at the beginning of the treatment the greater is likely to be the reaction following the discontinuance and, therefore, the greater should be the effort to prepare against this reaction. In general, the range would be from two to three doses per diem to one every two hours in the extreme cases, a dose being one-half dram of my solution* or of Squibb's new extract of ergot for hypodermic use, the two solutions being approximately the same. In all that I have said I have kept in mind the most difficult of all the drug habit cases to successfully treat, the morphine habitués. As compared with these the worst of the alcoholic class is simplicity itself, if ergot is properly used. The so-called "gold cure," to use a slang phrase, "is not in it" as compared with the ergot cure and, no matter what the degree of addiction, I would not for a moment consider the plan of "tapering off." The extreme case of morphine habituation which I mentioned occurred twenty years ago and had I then known and applied what I now know of ergot therapy, I am quite sure that that "twenty-four hours" would have had a very different history, and I would not hesitate to-day to treat such a case in any well-regulated hospital. One fact in my experience with ergot in treating the habit cases is worth mentioning, viz., that in no case after the first forty-eight hours have I ever had a request from the subject for his drug or a substitute, nor have I seen in any case any evidence of such desire. I have repeatedly been asked by a doctor-subject what under the sun I had been giving him (supposing, evidently, that I had used a substitute) as he had not had an ill feeling.

I have said that there are other methods of securing the prime indication in these habit cases and I would advise combining one or more of them with the ergot treatment, especially in the extremer instances.

It is desirable to avoid using in treatment any of the narcotic or even hypnotic class of drugs. Sleep is one of the requisites, but it may be secured without those drugs and I would do so if I had to use all five of the therapeutic agents I have mentioned and that they will suffice I have no shadow of doubt. I am so radically opposed to the "tapering off" plan of treating the habit classes that I hesitate to make any suggestion that savors of it, yet I am persuaded that there are many excellent practitioners of medicine who would not persist through the first forty-eight or sixty hours in carrying out my plan of treatment, with a confirmed, large user of morphine, and that it would be better to apply a modified treatment from the beginning, than to begin with the radical treatment and resort to the drug during the crisis of nervous excitement and physical depression. As my method has reference chiefly to the moral effect upon the subject, I will suggest a plan by which this may still be secured though the subject has the benefit of a modi-

* Take Squibb's solid extract of ergot ʒj, dissolved in sterilized distilled water ʒj. After filtering the solution add two minims of chloroform and shake gently. This solution is the most satisfactory I have used. It should be made with every precaution to secure against sepsis.

fication which will avoid, wholly or chiefly, the extreme reaction. This is to apply only to the worse cases of morphine or opium addiction, as alcoholic and other classes do not require such modification. The modified plan is to give with two of the hypodermics of ergot, each day, a fractional part of the quantity that had been daily consumed, and one-tenth part will be found sufficient if the ergot is given often enough. For example, if ten grains per diem had been used, one of the morning hypodermics of ergot would contain one-half grain of morphine and the same quantity would be given with one of the evening doses of ergot. The second day the morphine would be reduced to one-quarter grain in each of the two morphine-ergot hypodermics and a similar reduction should be made of 50 per cent. each day of what had been the previous day's dosage until the eighth day, when the morphine should be discontinued. The use of the ergot should be continued two or three weeks after the discontinuance of the morphine, gradually lessening the frequency of administration, to secure permanency of the improved tone of the circulation. The fact of the administration of morphine with the ergot need not and should not be made known to the subject. In these extreme cases, it is especially important that some or all of the other measures suggested be used to aid in correcting the general circulation and restoring tone of the nerve centers. One other suggestion occurs to me, viz., that the phthalate of morphine be used in preference to any other salt of morphine, as I have found it peculiarly free from unpleasant reactionary effect.

The general course I have outlined for the treatment of drug habit cases is presented because I have demonstrated it to be successful and because I believe it to be a rational and commonsense method and the most likely to result in permanent benefit to the thousands whose slavish addiction to drugs is more dreadful than death.

SUTURE OF THE OMENTUM TO THE PARIETAL PERITONEUM (EPIPLOPEXY) FOR ASCITES.

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The history of cirrhosis of the liver with ascites is usually progressive with fatal termination in nearly all cases. The abdominal effusion is one of the most distressing symptoms and has much to do with the fatal result. The effusion is caused by the pressure on the portal veins and capillaries in the liver and to secondary changes in the blood, due to want of function in this important organ. Possibly the engorged veins forcing the blood through the contracted liver hasten the degenerating processes in this organ. In old cases of this trouble adhesions are often seen between the omentum and parietal peritoneum.

These adhesions contain many large veins showing that this is an effort of nature to establish a collateral circulation and relieve the obstructed portal system. The formation of these adhesions is no doubt often facilitated by tapping, but they are frequently found in cases that have not been tapped.

These observations led Talma, of Utrecht, to suggest the operation of Epiplopexy for the relief of these cases. The first operation was done by Van der Meulen, of Holland, in 1889.

Several other of the earlier cases were reported from that country but none of them were successful. During the past eleven years many cases have been reported, with varying results. Gaston Torrence (*Annals of Surgery*, 1902, p. 303) collected 28 cases, of which 10 ($35^{72}/_{100}$ per cent.) were cured, and 2 ($7^{13}/_{100}$ per cent.) were improved. My case was Mrs. L., white, aged sixty years, wife of a saloon-keeper. She had used beer freely for a long time and for several years past has been in poor health, suffering from "liver trouble" and indigestion. I saw her early in February, 1903. Her abdomen was enormously distended; she was helpless and could move with great difficulty. Her limbs were edematous and her skin had a muddy yellowish appearance. She had not been tapped. An operation was suggested and readily accepted by the patient. She entered the Franklin Square Hospital and was operated on February 12, 1903. About 6½ gallons of slightly blood-stained fluid was removed. On opening the abdomen the peritoneum was seen to be greatly engorged; the liver was found to be slightly nodular and about half its normal size. The omentum was adherent to the parietal peritoneum on each side, the adhesion being very vascular. Its middle portion was sutured to the abdominal wall on each side of the incision and a gauze drain was inserted. Large quantities of fluid came away and the edema of the feet and limbs disappeared during the first two days.

At this time the drain was removed, and the wound soon closed. Although there was no indication of infection at any time, the patient ran an irregular temperature for more than three weeks. The morning temperature being usually subnormal, while the afternoon temperature was slightly elevated. The patient's general condition was always satisfactory, and her improvement was marked.

For six months after the operation her health was better than it had been for years and she was actively engaged in her household duties. Two weeks ago she began to complain of slight pain in her left thorax and from shortness of breath.

Dr. H. C. Bubert, her physician, diagnosticated pleural effusion. I saw her with him, and on September 22 we aspirated her chest, drawing five quarts of bloody serum. Her abdomen presented a peculiar appearance before the operation. There was no distention of the lower part but on the left side of the median line below the costal arch was a hard mass, evidently the left lobe of the liver pushed down and forward.

September 23.—The patient much improved; still slight fulness over the lower left thorax; the left lobe of liver in its normal position, and careful examination failed to show any sign of ascites.

Some observers think that the ascites of liver cirrhosis is due largely to blood changes secondary to the liver degeneration. If this be true and the pleuritic effusion in this case was the result of such changes, the absence of recurrent peritoneal effusion speaks strongly for the operation.

The possibilities of this operation are limited by the liver condition. In cases where the cells of this organ are so far destroyed that its functions are lost; the result is fatal and the operation necessarily a failure. It is only in the less common cases, where the destructive processes can be arrested, that we can hope for a cure.

In others, where the degeneration is slow, the patients may be relieved. Several modifications to this operation have been suggested. Curetting and suturing the liver and other solid organs to the abdominal wall has been advised by some. These procedures seem to me to add danger to the cases without benefit. These patients have little resistance and readily become infected; the exudate from the irritated surfaces forms an excellent culture medium for germs, and the cases operated on by this method show a high mortality. It seems probable that irritation of the liver wall resulting in adhesion would be more harmful than beneficial.

The primary object of the operation is to relieve the congested liver, and irritation or suture of its coverings is not likely to bring about this result. Simple suture of the omentum with gauze drainage, it seems to me, gives the best results with the minimum amount of danger.

The case reported shows several points of especial interest: (1) The presence of the vascular adhesion showing the effort of nature to form collateral circulation; (2) the subsequent occurrence of pleural effusion with no ascites points strongly to good collateral circulation for the portal system, and (3) the marked improvement in the patient's general condition shows better functioning of the liver and intestinal organs after the operation.

Bacteriology of Eczema.—In a large number of cases of chronic eczema, F. Veiel (Münch. med. Woch., Jan. 5, 1904) found staphylococci in all stages. The colonies were generally characteristic for the aureus, less often for the albus and citreus; occasionally several were present together, though the colonies were as a rule pure. The germs were in every way identical with the common pyogenic cocci and not with the staphylococci of the normal skin. The part which staphylococci play in the pathology of eczema cannot be decided with our present knowledge, but the fact that they occur in early stages and in pure culture, seems to indicate some important rôle in the pathogenesis of the process. Since other germs are absent as has been described by Unna can be positively excluded and eczema must hence be looked upon as a form of pyogenic skin disease.

MEDICAL PROGRESS.

MEDICINE.

The Sun as a Cause of Disease.—In these days, in which so much is being written of the stimulant and beneficial action of the actinic rays of the sun, it is but natural that the reverse of the picture should also find its painter. Finsen, indeed, who has been the pioneer in the therapeutic application of these rays, was also the one to initiate the reaction, by his studies on smallpox and light, and on sunburn. Prof. Fermi (Arch. f. Hygiene, 1904, Heft 4) has pursued this latter line of investigation experimentally, upon a large number of human subjects and with most interesting results. By exposing his "material" to the direct sunlight for varying periods of time he was able, in a large percentage of cases, to produce the following set of symptoms, which often persisted over many days: Cephalalgia, dryness of the nasal mucosa, snuffling, coryza, pharyngitis, weariness, slight conjunctivitis, dryness of the lips, fever, pseudo-influenza, constipation, insomnia, epistaxis, various pains. This congeries of symptoms seems not very formidable, yet it induces the author to conclude, from the observed coincidence of meteorological conditions and of certain diseases, that exposure to the sun's rays is a predisposing factor in coryza, influenza, hay fever and epidemic meningitis. A curious element is the fact that only 53 per cent. of the persons under experiment, found the exposure disagreeable, while the others, notwithstanding the subsequent ill effects, enjoyed it.

Acute Polyomysitis.—Acute inflammation of one, or a group of muscles, is a rare condition, which may for a time simulate an infectious disease. In the case of J. Baer (Münch. med. Woch., Jan. 26, 1904), a lobar pneumonia was first suspected, but soon the pulmonic symptoms disappeared and the muscles of the shoulder region became acutely inflamed. The onset was with a distinct chill and throughout the course fever and tenderness along the nerve-trunks, without other signs of neuritis, were marked symptoms. Antipyrin and the salicylates were without effect. All attempts to isolate a specific germ were unsuccessful since culture taken from the fluid aspirated from the muscles, and the blood itself remained sterile.

Acute and Chronic Inflammations of the Sigmoid Flexure.—Acute sigmoiditis is a condition which has been observed repeatedly by A. Bittdorf (Münch. med. Woch., Jan. 26, 1904), and which manifests itself by fever, pains in the left hypochondrium and a distinct tumor in this region, of elongated shape, with constipation and more or less distension of the entire abdomen. The cause is probably an accumulation of feces in the folds of the gut. High leucocyte counts obtained in a few cases make it probable that a circumscribed peritonitis may follow. The treatment calls for rest, fluid diet, Priessnitz and cathartics; as soon as the bowels are emptied, relief generally sets in. In the chronic form the symptoms are the same but more prolonged and with less marked fever and the patients often complain of anorexia, lassitude and general nervous disturbances. The treatment is the same; occasionally massage gives much relief.

Multiple Fat Necrosis.—There is a close relation between fat necrosis and lesions of the pancreas, yet very marked cases have been described without the slightest suggestion of pancreatic disease. The most important of the latter is hemorrhagic pancreatitis, though its most acute form usually kills so rapidly that necrotic foci do not have time to form. Except in traumatic cases, the appearance of fat

necrosis seems to be limited to a certain age and to stand in close relation to the amount of panniculus adiposus so that stout individuals of advanced years are most often affected. The best way to demonstrate the foci is by means of the mordant for gliafibers, which contains chrome-alum and acetate of copper; the latter will combine with the fat and give rise to a green color. This is not, however, specific for fat necrosis for fatty areas, such as atheromatous spots on the intima of the aorta, will also turn green, according to C. Hart (Münch. med. Woch., Jan. 12, 1904). The etiology of fat necrosis is still obscure, but it is generally conceded that pancreatic juice escapes from the inflamed pancreas and that its fat-splitting ferment liberates fatty acids which combine with lime salts. The clinical symptoms are uniform: there are signs of intestinal occlusion or perforative peritonitis or else severe colic and collapse develops so that an intoxication or severe infection is suspected. The pathological lesions do not explain the symptoms, which may possibly depend on irritation of the sympathetic nerves. All therapy is without avail, yet cases of spontaneous cure are on record.

Occurrence of Koplik Spots in Measles.—In a severe epidemic of measles, O. Müller (Münch. med. Woch., Jan. 19, 1904) found the Koplik spots present in 81 per cent. and an initial eruption on the hard palate in 86 per cent. It was only possible to observe 12 cases during the period of incubation; in these the spots were found seven times on the first day of the disease, when the temperature began to rise, when the eruption on the hard palate usually did not show itself before the third day. The author also had occasion to observe an epidemic of rubeola in which almost half of the cases presented typical Koplik spots, so that these can no longer be considered pathognomonic for measles. The diazo reaction in the latter disease was also studied; it is very constant in appearance but is of less practical value since it is rarely positive before the end of the first stage or the beginning of the second. There seems to be considerable difference of opinion as to the temperature curve in measles; in most cases seen by the author from the very start, there was an initial rise, then an intermission of one to two days, and finally a continuous fever of several days' duration. In two instances the temperature rose with a remittent curve and in one the onset was sudden, with high fever.

Eosinophile Cells in Sputum.—A good method for demonstrating the eosinophile cells in sputum is given by W. Hildebrandt (Münch. med. Woch., Jan. 19, 1904). He spreads the particles of sputum on a slide, heats this and treats it for thirty to sixty seconds with ten drops of Leischmann's eosinmethylene-blue solution. Fifteen to seventeen drops of water are then added to the dye and the whole allowed to remain on the slide for seven to nine minutes more. The slide is finally washed, dried and examined with the oil-immersion. It is a mistake to believe that the presence of many eosinophile cells has a special diagnostic value since they are found in abundance in many diseases of the respiratory tract. In tuberculosis of all varieties they may constitute up to 80 per cent. of all cells and they often abound in the sputum of acute and chronic bronchitis, bronchopneumonia, lobar pneumonia and hemorrhagic infarct of the lung. They also occur in nasal and pharyngeal secretion without the presence of asthma and in the vaginal secretion of gonorrhea. In asthma, however, the granules are larger and more distinct and take a deeper stain, yet these peculiarities are not sufficiently marked to enable a diagnosis.

Tachycardia in Pulmonary Tuberculosis.—Tachycardia during the course of infectious diseases is generally due to weakness of the heart muscle, and this applies to tuberculosis as well. There is, however, an increased pulse-rate during the early stages where fever is still absent, which evidently has a different causation and which is frequently of importance as an early symptom. S. Sterling (Münch. med. Woch., Jan. 19, 1904) states that it also has a high prognostic value, so that the following rules may be laid down: (1) A normal pulse-rate in the course of pulmonary tuberculosis is a very favorable sign. (2) Constant tachycardia renders the outlook more serious, in direct proportion to the degree of increase, especially if fever is absent. This applies particularly to the first stage of the disease. (3) Nervousness on part of the patient will only bring about a temporary increase; even strong psychical influences will only add 5 to 10 beats to the pulse where in the non-tuberculous the increase would amount to 20 to 30 beats. (4). The rules apply to both sexes but do not hold so strictly in children and old people. (5) There seems to be no constant relation to hemoptysis; convalescence from influenza retards the pulse, and rest, cold applications to the precordium and the bromides have the same action in the more favorable cases. (6) With a slow pulse, the outlook is excellent unless some renal or arterial disease, etc., is responsible for the condition.

OBSTETRICS AND GYNECOLOGY.

Extra-uterine Pregnancy.—It may be admitted that the profession is now in fair possession of the facts related to the pathology of extra-uterine gestation. The symptomatology, however, and, above all, certain details of the treatment, are still largely in need of elucidation, and an experience of more than 18 cases, as reported by M. Storer (Bost. Med. and Surg. Jour., Jan. 7) is well worthy of attention. This author has had an especially valuable experience with tubal abortions, inasmuch as this condition, ordinarily considered so rare, occurred in 56 per cent. of his cases. The symptoms which he found of chief importance in this condition were pain and anomalous escape of blood from the uterus. This pain is characteristic, yet ordinarily not severe enough to bring the patient to a doctor. It is quite different from that of ordinary menstruation, short-lived, stabbing, not colicky, and not comparable in severity with the pain of a tubal rupture. The subsequent metrorrhagia ordinarily excites the suspicion of the patient, which is confirmed by a vaginal examination. As regards tubal abortion or rupture, the author states that the characteristic symptoms, contrary to general belief, occur before the eighth week. The question of treatment resolves itself into one of operation; the author advises that this should always be as early as possible after diagnosis.

Intra-uterine Flushing and Drainage.—As a substitute for the curette and douche in the treatment of puerperal sepsis, H. G. Wetherill (Am. Med., Jan. 30, 1904) proposes the employment of a double drainage tube and frequent irrigations with weak alcohol. A soft rubber tube of the proper diameter is doubled on itself so as to form a triangular end. The removal of putrescible débris from the uterus is accomplished by the finger or a blunt placenta forceps, followed if necessary by flushing with salt solution, potassium permanganate or diluted alcohol, all of which are non-toxic and used only for

their mechanical effect in washing out loose fragments. The double drainage tube is then inserted to the uterine fundus, the vagina lightly packed with gauze, no anesthetic being necessary. The tubes are then flushed out every two to four hours with alcohol, varying from 25 to 95 per cent. in strength. The author considers that the omission of any gauze packing in the uterus is very important and the diluted alcohol used for flushing the tubes, in addition to its mechanical effect in removing débris, has a chemical action in arresting putrefaction and bacterial growth. It is non-toxic and also supporting and stimulating.

Rupture of the Uterus During Labor.—Happily this is a very uncommon accident. T. B. Grimsdale (Brit. Jour. Obstet., Dec., 1903) finds that its frequency varies according to various authors from 1 to 482 cases (Collins) to 1 to 6,000 (Lusk). The mortality is also very high, varying between 55 and 95 per cent., according to the estimates of authorities. The lowest mortality is obtained where prompt abdominal operation can be performed. A patient who came under the writer's observation had had four children, and her fifth confinement started on June 14, 1903, at 2 P.M., when the "waters" burst. At 9.30 the following evening labor pains began, and continued until a hand (the left) presented. Version was done, but as the os was rigid there was some delay. The child was dead and putrid. When the operator tried to get the foot down through the os, it was recognized that something was wrong, for at the posterior portion of the os another opening could be felt, and through this there came what the accoucheur considered a loop of the intestines. The delivery was completed and after the vagina had been packed with gauze, the patient was removed to the Royal Infirmary where she arrived at 3 o'clock the next morning. The abdomen was opened as soon as possible and there escaped from its cavity clear fluid and blood clots. The uterus was found to be ruptured in the posterior portion of the lower uterine segment. Panhysterectomy was performed. The patient was much collapsed after the operation. On June 28, one week after the operation, the patient acquired pleurisy, which cleared up in four days, and on July 21 she was discharged as cured. The author believes that the safest treatment in the long run will be found in the boldest measures; also, that it is safer in these cases to remove the entire uterus.

Hydatiform Mole.—The patient in whom this condition developed had had one miscarriage and three children, and when she reached her fortieth year in March, 1901, she had missed her last period. On April 9 she had a severe hemorrhage. Five days later there was a second one, and still five days later, the third; large clots being passed on each occasion. The patient had nausea, and vomiting and on examination, there could be made out a large abdominal tumor resembling in size and shape a pregnant uterus, but which had enlarged much more rapidly than a pregnant uterus should. Jno. D. Malcolm (Brit. Jour. of Obst., Dec., 1903) examined the patient and found the uterus enlarged, but the cervix was hard and firm. As neither fetal heart nor uterine souffle could be heard on auscultation, pregnancy was ruled out in making a diagnosis of the condition. May 8 Dr. R. H. Bell had the patient anesthetized. On introducing the finger through the cervix, a soft mass, which did not bleed freely, was felt, but there was no trace of membranes or fetal parts. A small piece of the mass was dragged out and proved to be the characteristic small cysts of a hydatiform mole. The uterus was emptied and curetted. At this time there was no suspicion of the presence of any abnormal condition outside the uterus. May 29, after the patient had had a tedious convalescence, a second operation was decided upon because the patient had had a great deal of abdominal pain, especially upon the right side of the pelvis. Dr. Malcolm opened the abdomen and a cystic tumor of the right ovary was found, which was as large as a cocoanut. On the left side there was a similar but very much smaller growth. The pedicle upon the right side was twisted, causing, no doubt, the previous abdominal pain. The uterus was large and flabby and not of the same consistence throughout. It was found to be invaded by a chorio-epithelioma. A complete hysterectomy was performed. The patient left the hospital on July 8, forty days after the last operation. A letter received from the patient on April 4, 1903, reported that she was in excellent health. On June 20 of that year, a physical examination by the author showed all parts of the pelvis perfectly healthy.

Acute Contagious Pemphigus Neonatorum.—It is rare to find this disease occurring as a limited epidemic unless it be of syphilitic origin. When it does occur, it is local in its distribution, among the poor, and is associated with unclean linen and want of antiseptic precautions. In September and October, 1902, an outbreak of this peculiar infection sprang up in the Richmond (Surrey) Lying-in Charity Hospital. According to George J. Maguire (Brit. Jour. Obst., Dec., 1903) there were 18 infectious out of 20 cases delivered by one midwife; and when she left the neighborhood the epidemic ceased. Of these 18 cases, eight died. The symptom common to all the cases was the skin lesion; nor was there any other manifested in those infants that recovered. In all the fatal cases, there had been other signs, forming a group of easily recognizable and similar symptoms; the whole composing a clinical picture of definite outline. The bullæ, after breaking down did not dry up or pale, but remained constantly moist until the death of the infant. There were also symptoms of an acute toxemia in the fatal cases. The epidemic was found to be due to infection by a pathogenic organism, the *Staphylococcus pyogenes aureus,* convey from case to case by the infected midwife. Although only fatal among the new-born older children and adults were attacked during the epidemic. It was characterized by a bullous eruption of the skin, variable in distribution and extent, the specific micro-organism being found in the contents of the vesicles. The point at which the systemic invasion took place was the unhealed umbilical scar. Treatment to all appearances had little or no effect upon the course and duration of the disease, whatever the final outcome of the case.

Acute Yellow Atrophy of the Liver with Pregnancy.—The following case, which is most interesting, is reported by A. J. Sturmer (Brit. Jour. of Obst., Dec., 1903). Woman, aged thirty-five years, II-para, was admitted into the Government Maternity Hospital at Madras, in a semiconscious condition. She was said to be six months pregnant. Her urine was of high color, sp. gr. 1.015, and acid, but contained no albumin. With a drop of nitric acid no decided bile reaction was present, but on the evaporation of the acidified urine leucin crystals were present. Abdominal examination showed no uterine action and the liver dulness seemed to have disappeared; the hepatic area was resonant all over. Her bowels did not act, and after a restless day she became noisy, and died twelve hours after admission. A post mortem was made nine hours after death. All the tissues were bile stained. Liver shrunk under the ribs and folded on itself and wrinkled; tissue very soft, not yellow, and more like that of the spleen; no

lobules apparent; weight 23 ounces. Gall-bladder empty, except for a little thick gray mucus; ducts all pervious; uterine wall thin, and the placenta attached to right and front, amniotic fluid greenish yellow in color. Intestines not injected. Bladder contained a good deal of very yellow urine. Section taken from the surface of the liver showed that the liver structure was gone; it was only an ill-staining mass of débris, pigment and fatty granules. Those cells, which were not completely disorganized, showed an indistinct outline, being granular and contained a large amount of pigment, which completely obscured the cell nuclei. This pigment was a very marked feature of the specimen. Acute yellow atrophy of the liver during pregnancy is quite rare. From 1883 up to present time, 37,475 labors and abortions were treated at the Government Maternity Hospital in Madras, and during that period, but five cases of this disease have been noted. In 1886, two cases were recorded. The writer gave the patient under consideration, thyroid extract on the supposition that the disease was one due to perverted metabolism, but, of course, no results could be obtained, as the patient so rapidly succumbed.

Antenatal Rigor Mortis.—Medical jurists can no longer doubt that this condition may and does take place before the expulsion of the fetus from the uterus; and, says KEDARNATH DAS (Brit. Jour. of Obst., Dec., 1903), that its presence in the new-born infant is not necessarily proof of life apart from the mother—of, in fact, an independent existence. In all there have been 39 such cases reported. The rarity with which it has been observed may be explained by the following circumstances: (1) The fetus has probably gone through the rigid stage before birth; (2) the obstetrician generally remains busy with the mother; (3) out of respect to the relatives and friends of the patient, the doctor does not like to critically examine the fetus after it has been found dead; (4) probably the attention of very few obstetricians is directed to this point. In a case of the author's the fetal movements had been most violent, but half an hour later no fetal heart sounds were audible. The writer is inclined to believe that prolonged gestation after the period when labor comes on spontaneously, may be an important factor in the production of antenatal rigor mortis.

Permanent Results from Prolapse Operations.—An interesting series of statistics is presented by M. JACOBY (Arch. f. Gyn., Vol. 70, No. 3) relating to 257 cases of uterine prolapse treated by various operative procedures. About 77 per cent. of these could be traced for the purposes of the investigation. As far as possible the choice of operation in each case was governed by the actual conditions seemed to demand rather than by favoring any particular procedure which might happen to be in vogue at the time. The author, as the result of his observation, became convinced of the truth of the proposition already advanced by Küstner, that in every operation for uterine prolapse it is most essential to correct whatever displacement may exist of the uterus itself. He comes to the conclusion that no one method can be recommended for all cases, each case must be treated individually. Prolapse of the posterior vaginal wall due to old lacerations can in most instances be corrected by a perineorrhaphy after the method of Asch without doing a separate colporrhaphy. If the anterior wall is prolapsed, an anterior colporrhaphy must be added. Recto- and cystoceles demand particular attention. If the prolapse of the vaginal walls is accompanied by a retroflexion or a retroversion, this should invariably be attended to. He prefers the Alexander-Adams operation for bringing the uterus forward and where there is a high degree of prolapse in women after the climacteric, recommends a vaginal hysterectomy, together with the necessary plastic operations on the vagina. Permanent results in his series of cases comprised 94.53 per cent. of all women examined, after a sufficiently long time to test the success of the operation. These figures are much more favorable than those presented by other authors, which range from 69 to 79 per cent.

Puerperal Metrophlebitis.—A number of surgeons have recommended and carried out with more or less success, a method which consists of ligating or excising thrombosed veins due to puerperal pyemia. Trendelenburg adopted an extraperitoneal approach to the hypogastric vein and reports a successful case. Sippel recommended, in cases where the uterus was removed for pyemia, that the neighboring veins be followed up and excised, this of course by the abdominal route. The former advises doing the operation after the second chill, the latter not until the chills have recurred several times. Trendelenburg thinks it is essential that the hypogastric vein should be ligated, because in a series of 21 autopsies on cases of thrombophlebitis, he found the hypogastric involved about twice as often as the spermatic. GROSSMAN (Archiv f. Gyn., Vol. 70, No. 3) has lately made a more extensive series of autopsies in order to determine the relative involvement of these veins. Among 51 cases there were 14 with thrombophlebitis, 24 with lymphangitis and 13 in which both forms were combined. He also found that in the majority of cases other veins besides the hypogastric were thrombosed. In only one case could the operation advised by Trendelenburg have been done. A previous diagnosis had only been made in nine instances. The course of the disease in all cases where there is a simple thrombophlebitis is a protracted one, lasting several weeks or months, while in the majority of cases where a lymphangitis is present the fatal result comes on in a few days. Another noticeable feature in this series of 51 cases was the fact that in all some divergence from the normal course of labor was present. The author does not believe that the mortality in puerperal pyemia will be much affected by the introduction of this operation, but thinks that the effort is a step in the right direction and further research should be encouraged.

NEUROLOGY AND PSYCHIATRY.

Musical Equivalent of Epilepsy.—TEOFILO MONTAGNINI (Gaz. degli ospedali, Dec. 27, 1903) reports two cases in which a musical equivalent of epilepsy was observed. The history of his own case was that of a man aged forty-eight years, subject to epileptic attacks. Physically he was normal; mentally somewhat weak, querulous and excitable, and sometimes subject to mild delusions of persecution. From 1892 to 1896 he suffered from typical epileptic attacks, with mental deterioration, and occasional spells of echolalia. In 1896 he presented the phenomena of ambulatory automatism. In 1897 his mental condition was at times somewhat demented. He began to suffer from attacks of singing, which began and ended suddenly, lasting five to ten minutes, at which time he was insensitive to pain or touch. He never had convulsions during the song, though marked pallor and a slight trembling were noted. These attacks of singing were improvised and spontaneous; not caused by external stimulus. In 1898 he alternated attacks of singing with general convulsions, both of which occurred more frequently than formerly. Treatment by bromipin, continued to 1902, completely stopped the motor convulsions, and made the attacks of singing much less frequent. The writer does not believe these musical crises were related to the de-

mentia, because they occurred at the same time; they always were the same in character, and lasted about as long as grand mal—five to ten minutes. They persisted and the patient was not unconscious during the attack. The general tremor, pallor and anesthesia to pain during the attack was remarkable, and their subsidence under bromides was marked.

Diagnostic Significance of Certain Reflexes and Tendon Phenomena.—The importance of certain tendon and skin reflexes in determining the presence of organic disease is being more fully realized not only by neurologists but also by those who come in contact with general medical cases. H. Oppenheim (Med. Rec., Jan. 2, 1904), whose experience in a clinic for nervous diseases in Berlin has brought him in contact with so many thousands of cases in which the knee-jerks were carefully examined for, makes the statement that he has never seen more than three or four instances of complete loss of knee-jerk when some organic disease of the nervous system was not present. These very few exceptions would seem to prove the rule. Mechanical conditions may sometimes render the demonstration of this reflex difficult or impossible. Obesity and joint deformities must, of course, be taken into consideration. He urges also the importance of the heel phenomenon, or plantar flexion of the foot upon sticking the tendo Achilles. This has not been held to be of much value on account of its supposed inconstancy in healthy individuals, but he believes that if the examination is made with the patient in a kneeling position the reflex can be regularly elicited. The absence of this phenomenon may depend upon neuralgias, sciatica, deformities, alcoholism, and diabetes and even in apparently healthy people it is sometimes absent, but on the other hand, it is of great importance, and in tabes may disappear before the knee phenomenon. The significance of Babinski's reflex has also been thoroughly investigated and for a time was thought to mean an increased tonicity such as exists in a spastic paraplegia, the pyramidal tracts being involved. It has been found, however, that it does exist in many cases in which there is also an involvement of the posterior columns of the cords and areas of the nervous system which exerts an influence antagonistic to the symptoms from pyramidal tract diseases alone. This phenomenon may then be the only remaining sign of pyramidal lesion. When this tract is involved in the brain, as in hemiplegia, Babinski's sign is, as a rule, present, but lesions of certain other tracts and centers at the same time may prevent its appearance. In the first year of life the sign is also present because the pyramidal tracts are yet undeveloped. In certain cases of epilepsy the sign has also been demonstrated so that we must not conclude that its pressure always means an organic lesion of the pyramidal tracts. The author also alludes to a reflex which he first observed and which is similar to Babinski's in importance, but which may sometimes be demonstrated when the latter is absent. If, in a normal person, on stroking the inner side of the leg from above downward, with the thumb or by pinching a fold of skin on the inner side of the leg, either no reflex movement will follow or a plantar flexion of the toes will follow. In affections of the pyramidal tracts a dorsal flexion of the toes and foot is observed. In this reflex not only the extensor longus hallucis but also the tibialis anticus and sometimes the extensor communis digitorum contract.

The Presence and Significance of Cholin in the Cerebrospinal Fluid in Epilepsy.—Ever since Mott and Halliburton discovered this alkaloid in the blood and cerebrospinal fluid of cases of nervous disease, the relationship of this substance to the pathogenesis of lesions of the nervous system has been carefully studied. Found by the original investigators in progressive paralysis and tabes, combined and disseminated sclerosis, alcoholic polyneuritis, beriberi and after experimental section of the sciatic nerve, this alkaloid has also been discovered in the cerebrospinal fluid of epileptics by J. Donath (Hoppe-Seyler's Zeitsch., Oct. 31, 1903), who finds that not only is it present in such cases as a rule, but that it also is capable of producing convulsions if injected into animals. It is remarkable that in genuine Jacksonian and syphilitic epilepsy, the evidence of the presence of cholin is as positive as in organic diseases of the central nervous system, in which the presence of cholin is to be attributed to the disintegration of nerve-tissue with the setting free of lecithin and the splitting off of cholin. On the other hand the author found no cholin in cases of simple hysteria, hystero-epilepsy and neurasthenia. It appears that cholin is burnt up in the blood, for if injected into the brain or into the veins, its presence cannot be detected afterward in the urine. The author injected cholin into the cerebral cortex with the result of producing severe tonic and clonic convulsions that frequently terminated in paresis. The convulsions were mostly general, yet frequently they predominated on one side. In experimenting in the same way with neurin, the author found no appreciable qualitative or quantitative differences between the two substances. Both are powerful nerve-poisons, having a more effective action upon intracerebral than upon intravenous injection. The author is of the opinion that in epilepsy two causative factors are at play, namely, an increased excitability of the cerebral cortex and the operation of some toxic substance. The fact that cholin is found in the cerebrospinal fluid in this disease as in organic diseases of the nervous system, and also the experimental proof of its action when injected into the body, led him to conclude that cholin plays an eminent rôle in the production of the epileptic seizure. At the same time the brain of epileptics is, as the result of hyperemic, chronic inflammatory or hypoplastic processes, more susceptible to the action of such toxins. In this way may probably be explained the epileptiform attacks in progressive paralysis, in which cholin is produced, and in which hyperemia causes an increased excitability of the cortex of the brain.

The Uses of Lumbar Puncture.—A summary of the technic and the clinical and therapeutic advantages of the lumbar puncture is made by C. M. Campbell (Rev. of Neurol. and Psych., Jan., 1904). The puncture is best made in the fourth lumbar interspace, where the dura mater is most firmly attached and where there is thus less chance of the membrane being pushed onward by the needle and failing to draw off fluid. The fourth interspace is determined by feeling for the highest point of the crest of the ilium on both sides; the line joining these points passes over the fourth interspace. Normal cerebrospinal fluid is clear as crystal. If the fluid withdrawn by the operation is bloody, one has to determine whether the blood is caused by the operation or not. There are a number of methods of finding this out, one being that devised by Sicard, namely, that of noting the intensity of the color of the fluid removed; if the blood is due to a hemorrhage, the fluid has a darker tint than if the blood is due to the operation. A greenish or yellowish coloration is seen in chronic jaundice. Of clinical value is the estimation of the osmotic tension of the fluid. Two methods for this purpose are available, the cryoscopic and the hematolytic. The freezing point of blood serum is 0.56°, while that of normal cerebrospinal fluid is about 0.75°. The fluid therefore has a greater molecular concentration than blood serum—is hypertonic with regard to it. This hyper-

tonicity is inverted in cases of acute meningitis. The inversion, if present, confirms the diagnosis of meningitis; if absent, does not exclude it, and in any case does not help to distinguish between the tuberculous and the non-tuberculous form. Bacteriological examination of the fluid often reveals the presence of a meningitis where no clinical symptoms may be present. One has no right to deny, according to Widal, that a case has not been tuberculous meningitis merely because it has recovered, unless inoculation of a guinea-pig with the fluid has proved negative. Bacteriological examination also enables one to subdivide the various forms of non-tuberculous meningitis into (1) epidemic cerebrospinal meningitis due to the pneumococcus of Talamon, the meningococcus of Weichselbaum or the streptococcus of Bonome; (2) the serous meningitis of Ziegler, caused by a variety, among others, by pneumococcus; (3) cases in which Widal has discovered a variety of organisms. In boiling a normal cerebrospinal fluid a slight opalescence and fine threads appear; in certain pathological conditions, as in cases of tabes, general paralysis and syphilitic meningomyelitis and hemiplegia, this opalescence is exaggerated into a turbidity. A similar condition is found in erysipelas of the face, polymorphous erythema, cerebral hemorrhage and secondary syphilis. In acute meningitis fibrin is present. As regards permeability, the normal meningeal covering does not allow potassium iodide to pass through it; this does occur in tuberculous meningitis. The most valuable method of examining the cerebrospinal fluid is the cytological. Normally the cerebrospinal fluid is almost free from elements, containing no polymorphonuclear leucocytes, and few or no lymphocytes. Where there is meningeal irritation this is not the case. Thus in tuberculous meningitis the cells are almost entirely lymphocytes. In acute non-tuberculous meningitis there is usually a marked leucocytosis, sometimes rendering the cerebrospinal fluid purulent. If during chronic nervous diseases the meninges are irritated, cellular elements are found. In general paralysis a lymphocytosis of the cerebrospinal fluid is one of the earliest signs and is practically constant. In true psychoses and dementias of different origin, lymphocytosis is absent. This is also the case in hysteria, neurasthenia and epilepsy. In tabes dorsalis, lymphocytosis is the almost universal rule. The headache, which is such a constant symptom in secondary syphilis, is in certain cases associated with a lymphocytosis of the cerebrospinal fluid. As regards the therapeutic applications of lumbar puncture, it is of value in certain forms of meningitis, in uremic conditions, even with the fluid not under high pressure, and in the headache of secondary syphilis.

The Blood in Epilepsy.—An experimental study having for its object the determination of changes in the blood as a possible cause in the production of epilepsy has been made by F. S. PEARCE and I. N. BOSTON (Medicine, Feb., 1904). The cases studied included only those of essential epilepsy, where there was no organic disease in the brain or any other organs. As no definite histological changes have been noted in idiopathic epilepsy, inherent irritability of the cortical cells remains as an only explanation for the existence of the disease, if we do not think of disturbed metabolism being perhaps the exciting cause, or of some other poison circulating in the blood. Blood studies seem to be of importance therefore, in addition to careful examinations of the urine and other excretions. Observations were made on seven cases as to the number of red and white cells, percentage of hemoglobin, differential leucocyte counts before and after seizures, and also on animals, both before and after inoculation with defibrinated blood of epileptics, with a view of ascertaining the degree of toxicity common to epileptic blood. From these it would seem that there is in idiopathic epilepsy a fairly well marked chlorotic type of anemia. There was also a leucocytosis. The differential count showed a decided reduction in the polynuclear cells, but there was no increase in the lymphocytes, as is the case where the change is induced by malnutrition, starvation, etc. The red cells were approximately normal in number, but there was a moderate degree of poikilocytosis present, and this finding was especially marked where the hemoglobin was greatly reduced. These examinations, therefore, do not reveal any conclusive evidence of a change per se in the cells themselves in the epileptic. Injections were then made into the peritoneal cavity of rabbits, of blood as drawn from the patient and also where it was defibrinated. The results were about the same. In a typical case the hemoglobin rose from 65 to 84 per cent. and then fell to 44 per cent. seven days after the last injection. The leucocytes after several injections rose to the enormous number of 162,800 per cm., previous to which the rabbit was very sick, being rigid and tremulous. This must show some extreme toxic condition of the blood of the person from which it was taken. The leucocytosis disappeared, however, within two days. There were no corpuscular changes noted in the patient, therefore if the blood changes were due to alteration in the blood, it was principally in the serum. The authors believe that presumably some hemolytic enzyme is a part at least of the pathogenesis of essential epilepsy.

Syphilis and Tabes.—In a lengthy communication on this subject, W. ERB (Berl. klin. Woch., Jan. 25, 1904) reviews the statistical evidence which has been brought forward and comes to the conclusion that tabes in the great majority of cases is undoubtedly a disease of syphilitic origin, but at the present time it cannot be definitely proved, although very probable, that this is true in every instance. Among his own series of nine hundred cases, only about three per cent. failed at some time or other to show symptoms of syphilis. He thinks that these may be included under "syphilis occulta." Methods of cytodiagnosis, combined with lumbar puncture, may, in the near future, aid in giving us more definite information. The author believes, however, that there are many doubtful cases where true syphilis was questionably present, and suggests that there may be some other toxin closely related to that of syphilis, possibly of an infectious nature, which may injure the nerve tracts in a similar manner. The final decision of the question must therefore be left to the future.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Toxins and Antitoxins of Fatigue.—After many laborious experiments, D. WEICHARDT (Münch. med. Woch., Jan. 5, 1904) has finally succeeded in demonstrating a toxin of fatigue and its antidote. Since the toxin is most likely neutralized very rapidly in the system, only negative results were obtained when the blood-serum of exhausted animals was injected subcutaneously or intravenously into healthy animals of the same species. More success followed the use of muscle-juice; when injected with absolutely aseptic precautions, the animals died after twenty to forty hours, while the control animals remained alive. The toxins were very unstable and lost their activity when warmed up to 56° C. for two hours; if not warmed, the toxicity increased for forty-eight hours and then

gradually declined and disappeared, even if kept on the ice-chest under toluol. By means of intraperitoneal injection, an antitoxin could be readily obtained. This seems to be very stable and can even pass through the walls of the stomach without being altered.

Dried Immune Sera.—Every bacteriologist who has had to work with the diagnosis of typhoid cultures is aware of the trouble and difficulty connected with the immune sera. It is either necessary to preserve a set of sealed glass tubes containing serum of tested titer, which is broken for every test, or an immune animal must be kept in stock, and bled on occasion. These difficulties have been very ingeniously overcome by E. Jacobsthal (Arch. f. Hyg., 1903, Heft 3), by the preparation of dried and durable sera. Serum of a known titer is evenly distributed, with special precautions, on the surface of a piece of filter paper which has been ruled off into squares of definite and uniform size. By a simple calculation, the "titer" of each of these squares when dissolved in a given quantity of a salt solution may be determined. It is found that the paper has a uniform value, that it retains its power unchanged over long periods, that it is not injured by the cold of the ice-box, nor by heat of 100° F., prolonged for three-quarters of an hour. The utility of the discovery is, therefore, bound to be very great.

A New Method of Determining Albumin.—There is as yet no rapid and accurate method of estimating the amount of albumin in a body fluid. The Esbach is very unreliable and the methods of Kjehldahl, Jolles and the gravimetric estimation entirely too complicated for the ordinary laboratory. E. Reiss (Arch. f. exp. Path. u. Pharmak., Vol. 51, No. 1) has discovered that solutions of albumin possess a definite index of refraction and the percentage can be easily determined by means of a refractometer, with the aid of certain tables. A great advantage lies in the fact that only a single drop of fluid is required. Thus, in the case of blood, it is only necessary to fill the capillary tube of the Fleischl apparatus, then to seal it and to remove the clot after one-half to twelve hours. The drop of serum which remains will be amply sufficient. In a number of cases examined, the albumin of the blood was below normal, wherever the general vitality was reduced, irrespective of the disease from which the patient suffered. In acute infectious diseases there is no evident relation with the course of the infection but more with the duration and the severity of the disease. An amount of albumin less than 6.5 per cent., and in the presence of edema, less than 5 per cent., is a very unfavorable sign. The lowest figures were obtained in nephritis, even without anasarca. The hemaglobin of the blood is generally reduced earlier than the albumin and its estimation is of more value except in the more advanced stages of chronic disease, in acute infections and in nephritis. The method is equally as valuable for exudates, transudates and cerebrospinal fluid, but different tables must be used; for urine, the proper coefficient has yet to be determined.

Influence of Salt on Gastric Secretion.—Salt when given in fairly large doses, invariably causes a diminution of acidity in the gastric secretion and quantities of about seven grams have the same influence in man, according to M. Bönninger (Münch. med. Woch., Jan. 12, 1904). There may be some advantage in the therapeutic use of salt for hyperacidity; it is certainly preferably to sugar, since it does not influence the motility of the stomach to such an extent, though it lacks nutritive value. The digestion of proteids is also inhibited by the chlorides; they share this property with the sulphates, which interfere with digestion even in weak dilution. This does not, however, argue against the use of mineral waters for gastric disorders, as these are generally taken in the morning, on an empty stomach.

Experimental Inoculation of Endocarditis.—A case of fatal subacute infectious endocarditis caused by the pneumococcus was observed by C. Lesieur (Jour. de Physiol., Nov. 15, 1903), in which death was ushered in by a cerebrospinal meningitis. Cultures taken from the blood during life, and from the endocardial vegetations and meninges at autopsy revealed the presence of the pneumococcus. A rabbit inoculated with the pus containing the latter developed vegetations in the mitral valve. A second rabbit inoculated with blood taken from the heart of the first developed similar lesions in the mitral valve. The most interesting fact derived from these experiments is that the pneumococcus may display a tenacity to produce endocarditis in spite of the fact that it has to traverse channels and tissues ordinarily more susceptible to its pathogenic influence, thus becoming a special microbe of endocarditis. This phenomenon is evidently one showing the adaptation of a germ which is frequently a simple saprophyte in the saliva, to produce morbid changes in a special tissue.

Gastric Mucous Membrane in the Esophagus.—If the esophagus and stomach are preserved in Müller's fluid combined with formalin, flat epithelium can be readily distinguished from glandular by the cold; the interior of the stomach will be tinged deep brown while the inner lining of the esophagus will take on a much lighter hue. H. Schridde (Virchow's Archiv, Vol. 175, No. 1) draws attention to certain islands in the esophagus which are rendered especially prominent by this method since they stain like the lining of the stomach. They were found in 70 per cent. of the cases examined and occur especially in the lateral folds of the upper portion. Microscopically branched tubular glands, lined with cylindrical epithelium, are found in these islands. The character of the cells and their nuclei, their power of secreting mucus and the occasional presence of border-cells give evidence of a close relation to the normal glandular structures in the lower portion of the esophagus and cardia. In two cases the areas were so large that they might have been regarded as small stomachs in the upper part of the esophagus. Probably these structures and the normal flat epithelium of the esophagus are genetically distinct; the former merely represent the remnants of the original lining which was not replaced by stratified epithelium as this began to proliferate downward. The islands were also sought for in a large number of mammals with negative result. A second article on the same subject is presented by A. Rückert who states that these glandular erosions are often wrongly diagnosed by pathologists as decubital ulcers. They are of importance in that they may give rise to an adenoma or a carcinoma and frequently lead to cyst-formation. They probably play no part in the development of diverticula, as some claim.

Elastic Tissue of the Spleen.—If studied with the Weigert stain, the spleen will be found especially rich in elastic fibers, but great care must be taken to properly differentiate the sections in alcohol, else structures such as the walls of the veins will also take the dye though only ordinary connective tissue. In studying the elastic tissue in pathological spleens, B. Fischer (Virchow's Archiv, Vol. 175, No. 1) finds that it may remain unaltered as in infarction or may simply stretch as in acute enlargement. In cir-

cumscribed inflammation such as in tuberculosis or abscess, a destruction goes on, and if the swelling is excessive (leucemia, amyloid degeneration) it may be difficult to find any elastic fibers. New formation goes hand in hand with proliferation of the ordinary connective tissue in chronic hyperplasia and also in shrinkage of the organ. Several varieties and degrees may be distinguished: (1) Compensatory new-formation. The relation of elastic fibers to the total organ here remains about normal. (2) Simple hyperplasia, where the percentage is above normal but the hypertrophy involves only parts which normally contain elastin. (3) Fibroelastic induration. Connective tissue and elastic capsule into the parenchyma. This is seen most frequently in syphilis. (4) Elastic hypertrophy of the capillaries. The capillaries are surrounded by dense sheaths of elastic fibers. Occasionally met with in the amyloid spleen, more often in leucemia. The different forms may be combined in various ways.

Experimental Pathology of the Liver.—By ligating the hepatic artery, R. Tischner (Virchow's Archiv, Vol. 175, No. 1) could bring out the development of necrotic foci throughout the liver due to thrombosis of the portal branches, increase of leucocytes and leucocytic capillary thrombosis, secondary to diminished vis a tergo. General connective tissue hyperplasia does not occur under these conditions; even hyperemia of the fibrous tissues is absent though local induration is seen in the larger infarcts and wherever the bile stagnates. The fat is increased within the necrotic areas but disappears toward the interior of the lobule. Similar necrotic foci also follow if the common duct is tied off; the cause here is the increased resistance offered to the flow of the blood in the portal system by the stagnation of bile. General connective tissue hyperplasia will begin in the periphery of the lobule and gradually spread toward its interior; circumscribed foci are, however, less common, since larger areas of necrosis occur only shortly before death. The fat behaves as above and the diminution in size of the organ is caused by its disappearance. Large doses of phosphorus administered rapidly will bring about sublobular necroses while the capillaries through the liver are filled with leucocytes. These changes and the increased and slowed flow of blood are best explained by a chemical irritation of the splanchnic nerve. Small doses continued over a long period are followed by hyperplasia of the liver cells and connective tissue, also induced by irritation of the vascular nerves, leading to slight hyperemia with acceleration of the blood-flow. If fatal, the pathological picture shortly before death will resemble that of acute intoxication.

PEDIATRICS.

Sudden Death during Infancy.—Nothing has a more depressing effect upon the physician than the sudden death of a child apparently in the best of health. An autopsy will generally explain the condition: either the child has died while vomiting or else it has been suffering from capillary bronchitis or toxic gastroenteritis. The part played by the thymus gland in causing compression of the trachea in rachitis, has been much overestimated, but undoubtedly many cases of glottic spasm are due to an acute swelling of this organ. In others death sets in rapidly with cyanosis, dyspnea and convulsions, and at autopsy nothing but a large thymus, not causing compression of any important organs, is found. Here the thymus is merely a symptom of a general lymphatic constitution and death is most probably due to cardiac failure in individuals possessing abnormally low powers of resistance. Such cases are of great medicolegal importance, since murder or, in individuals of more advanced age, suicide may be suspected; but the presence of a large thymus at autopsy will clear the case. Another form of sudden death, rarely mentioned by authors, is spoken of by E. Feer (Correspbl. f. Schw. Aerzt., Jan. 1, 1904); it is the eczema death in infants suffering from extensive skin eruption, eczematous in character. Its etiology is as yet unknown.

Exanthemata Following the Injection of Diphtheria Antitoxin.—This question is discussed by Oberwinter (Deut. med. Woch., Dec. 31, 1903), who describes several cases where an eruption followed the injection and was at first believed to be due to the antitoxin. Later developments showed, however, that they were cases of true scarlatina. He claims that an eruption which appears particularly from the third to the fifth day should always be viewed with suspicion, for he has found that in most cases it was genuine scarlet fever and probably due to a dual infection with both diseases. The fact that the eruption begins at the site of injection is apparently no proof of its being due to the serum, although the author does not deny that a true serum exanthem may assume the form of a scarlatinal eruption.

Pulmonary Complication of Measles.—Measles is generally a harmless disease, yet rightly feared on account of its pulmonary complications, when occurring in epidemic form, since the mortality then is apt to exceed 40 per cent. C. Hart (Deutsch. Arch. f. klin. Med., Vol. 79, Nos. 1 and 2) has had opportunity to study a large number of lungs at autopsy and finds that the appearance differs considerably from that of ordinary bronchopneumonia, for though typical areas of consolidation are unmistakable, the cut surface has a peculiar ragged appearance and dilated bronchi are abundant. The lower lobes were frequently consolidated in toto and the pleura often participated in the process, though not to a marked degree. The most important lesions are found in the walls of the bronchi which show epithelial desquamation, swelling of the submucosa, intense congestion and hyperactivity of the glands. Later on, the walls become infiltrated with round cells and the muscle and elastic fibers will gradually disappear so that dilatation can readily occur. The alveoli surrounding the bronchi will participate in the process and soon young connective tissue appears to replace the destroyed tissues. The contents of the alveoli varies considerably, but most often there is an intense desquamation of alveolar epithelium. If the process is especially severe, reactive suppuration does not occur and the bronchial walls with the adjacent parts of the lung undergo necrosis. The appearance of connective tissue forms an interesting feature, for it can often be noticed that young granulation tissue spreads into the lumen of the bronchi and alveoli wherever these are bared of epithelium, thus leading to an obliterating inflammation. Probably many cases of emphysema and chronic bronchitis in early life must be ascribed to a previous pneumonia secondary to measles.

Opotherapy in Kidney Disease.—A maceration of kidney substance in all diseases accompanied by urinary insufficiency is highly praised by M. J. Renaut (Bull. de l'Acad. de Med. de Paris, Dec. 22, 1903). The only disadvantage lies in the fact that maceration must be prepared fresh daily. These kidneys, preferably obtained from the hog, are freed from all attached tissue, minced and then digested for four hours with 450 c.cm. of saline solution. The decanted fluid is consumed by the patient in three or four doses during twenty-four hours. The albumin will decrease.

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TYPHOID IN GERMANY.

Carlyle compared the advance of the world to the progress of some drunken man, who, reeling from one side of the street to the other, slowly and at the expense of much wasted effort finally arrives at his destination.

To one who is familiar with the history of medicine, even in its latest and most glorious period of development, this comparison must appear to possess a certain element of truth, touched, indeed, with the dyspeptic complexion of its author. There is scarcely a great acquisition of medical science regarding which opinion did not for some length of time oscillate between extremes, only eventually to reach and maintain the middle course of truth. And surely this is no disgrace. "To err is human," and, in view of this racial weakness, to weigh and test every opinion, and finally to reject the false and to retain the true, is the bright distinction of the scientific spirit.

Nevertheless, there are some opinions which even the most liberal are prone to regard as fixed and proven for all time. Such was the theory of the communicability of bovine tuberculosis, which had become established, apparently beyond the possibility of cavil, by the researches of Gerlach, Klebs, Chauveau, Bollinger, and others, in the early seventies of the last century. Yet Koch attempted, at a stroke, to sweep away the entire fabric as a cobweb. No less firmly imbued is the medical fraternity, whether clinicians or bacteriologists, with the conviction that typhoid, and especially typhoid epidemics, are due to infection through a contaminated water supply. And yet it would seem that this theory, also, has not the adamantine foundation with which it had been credited. In the February 20 and present issues of the Medical News are to be found a communication from a correspondent ("Typhoid Epidemiology"), wherein it is subjected to a criticism which might appear bold, were it not adequately sustained.

The writer, an American who had the good fortune to be engaged in the service of the German government as regular "Assistent" in a typhoid laboratory in Elsass, gained exceptional opportunities to study the development of the epidemics which were at that time prevalent. After a careful study of all the factors involved, he found himself driven to the conclusion that the water supply played no part in the dissemination of the epidemic, but that the infection was in each case communicated from man to man by personal contact.

The latter brings home an idea which is by no means new, inasmuch as it is now more than a year since Koch propounded the theory of "contact infection" in typhoid, but which is still somewhat foreign to Americans. The great German bacteriologist asserted that practically every case of typhoid was due to transference of infected material, either mediately or immediately, from the person of one victim to the mouth of the next. It appears, however, that the theory is not original even with Koch, but goes back far into the dim and ante-bacteriological days of medicine, since the clinicians of the earlier part of the century, among them Bretonneau and Trousseau held firmly to it. Be this as it may, it cannot be expected that the modern and deeply rooted theory will be abandoned without very convincing proofs as to its falsity. Admitted that the Elsass epidemic was traceable to a series of contact infections, as seems quite probable from the data so fully presented, it by no means follows that all other epidemics, many of which occur under vastly dissimilar conditions, are to be put in the same category. It may, indeed, prove to be true that "contact-infection" plays a far larger rôle in all epidemics than had hitherto been suspected; this is a question

which only a careful series of observations can adequately settle, but the evidence must first of all be thoroughly weighed and sifted. The question is one of such great importance to the race, that it behooves the medical world to make haste slowly—to creep, rather than stagger—like the drunkard of Carlyle, to the ultimate goal of truth.

THE PANAMA COMMISSION AND PROPHYLACTIC MEDICINE.

The Committee on Medical Legislation of the American Medical Association has indicated the keystone of the arch in the Panama Canal Commission. Surgeons, engineers, contractors, no matter how deserving of honor, nor how efficient in their work, will fall into what has long been called the "grave of the European" if they are not supported, nay more than that, controlled, by a medical officer who shall have full authority in carrying out the work of sanitation.

Our readers have but to refer to the article by George A. Soper, Ph.D., on Sanitary Aspects of the Panama and Nicaragua Canals, printed in the Medical News of January 4, 1902, to realize the importance of the request made by the American Medical Association, to President Roosevelt, that he appoint a representative of the medical profession upon the Commission.

Such work as was performed in Cuba by Dr. Walter Reed, can and must be done on the Isthmus if the work is to succeed.

The French failed for lack of man-power to put the excavations through. There were not enough natives to employ. The imported laborers from Jamaica fell sick and died, or gave up work in fear of death. The services of laboring men from the United States could not be counted on for three successive months, for before the end of the second month one-half of the force was on the sick list. In April and May of 1882, 37 engineers out of less than 100 died, and in September, 1884, it is said the Canal Company buried 654 officers and men.

There is no need that the new Panama Canal Commission should learn by personal experience the bitter lesson that the brave but fated French Company left behind it. Health, in what has been called the "Pest House of the Tropics," is the first essential to success. The mere presence of physicians and drugs will not ensure it; nothing but a rigid enforcement of sanitary laws under systematic authorized supervision will save to the Commission an adequate working force. The old French Company made the fatal mistake at first, of charging the contractors for the care of men in the hospitals, which policy kept many men at work when they should have been under medical care.

With this record of the first Panama Company's inefficient struggle against the fevers, dysenteries and depressing effects of the climate of the Isthmus it is a relief to turn to the contribution to the Medical News, made in the issue of April 12, 1902, by Henry L. Abbott, Brevet Brigadier General U.S.A. (Retired). He translated the statistical report presented by Dr. Lacroisade, the Medical Director of the new Panama Canal Company, in which it is shown that the percentage of disease and mortality among the new Company's employees was reduced in 1901 to about one-third of what it had been in 1881.

The message of Dr. Soper, after his residence in Panama was emphatic. A department of health, such as established by the Suez Canal enterprise, must be established in the Isthmus, with more than usual power of enforcing sanitary laws. The work of this organization must be not merely critical, it must be an active constructive organization. "It should," he says, "include the procuring and protecting of pure water supplies, and the prompt and permanent disposition of the daily wastes which will occur among the thousands of laborers who will be gathered together in camps and settlements." Hospitals along the line of work must be established, medical inspectors must examine the laborers to detect the presence of illness. Hours of work must be regulated, habits controlled, diet and housing overseen by the department of health, and the contractors must submit to a military-like enforcement of labor rules, such as is wholly unknown in our equable climate if they would keep their officers and laborers in working condition.

But the health of the employees as a means to the triumphant achievement of the Panama Canal is not the chief reason why medical men so strongly urge the President to appoint a medical officer on the Commission; it is the health conditions that are likely to occur when the canal is completed, that are the most serious menace to the country.

The short cut for commerce offers just as short a cut to disease. The cholera from Hongkong, Calcutta and Bombay, the plague from China and India, the fevers of South America will all converge to those narrow waters, and will be communicated by sailors who will want to spend a few hours on shore and catch up with their vessel

by train. Only the most rigid inspection and well-established quarantine stations will prevent the canal from becoming a focus of disease. Once let plague, cholera and yellow fever get a footing among the population that will settle along the completed canal, and instead of being a boon to commerce the waterway will become a curse; for no matter if a ship comes from a clean port, she would not be admitted by the quarantine officers of any healthy city, if she had just spent a day and a half in an infected country.

We consider that it is of the utmost importance as an economic measure that a medical man should be numbered among the members of the Commission and that detailed preparations should be begun at once, in harmony with engineering projects, so that the builders may begin their work with an efficient sanitary and medical organization.

It is noted that Col. W. C. Gorgas, of the U. S. Army and its expert in tropical diseases, has been called in consultation with the members of the Commission and will in some measure have charge of these sanitary problems. They could be entrusted to no better hands. However, if the President rises to a full appreciation of the economic importance of health in its bearing upon the success of this prodigious undertaking, both during its construction and thereafter, he will not hesitate to clothe Col. Gorgas with the dignity and authority of a full member of the Commission.

AUTOPSIES IN PUBLIC HOSPITALS.

Assembly Bill No. 227, recently introduced into the legislature by the Hon. W. Y. Robinson, at the request of the Superintendent of the Craig Colony for Epileptics is "An Act to Amend the State Charities Law in Relation to Autopsies at the Craig Colony for Epileptics," and is as follows:

"Section XI. Have power (the Superintendent), subject to the supervision and control of the Board of Managers, in case of the death of any patient at such institution, who shall have been maintained therein wholly at the public expense, to make, or cause to be made, an autopsy on the body of such patient."

There is every reason, in our opinion, why this Bill should become a law. Germany is admittedly the leader to-day in scientific medical research. This is largely due to the fact that autopsies are permitted on the bodies of all patients who die in the public hospitals. Artificial and sentimental objections should no longer be permitted to stand in the way of scientific investigations, carried on for the benefit of the entire human race. There is a vast amount of valuable material at the Craig Colony that ought to be freely at the pathologist's disposal.

This Bill is unquestionably a step in the right direction. We hope it will pass and receive executive approval, and that the time is not far distant when a similar general law applicable to all public institutions in the State may be enacted.

A NOVEL ASPECT OF THE ALCOHOL PROBLEM.

The laborious investigations and the animated controversies on the physiologic, therapeutic and economic phases of the alcohol question, must, temporarily at least, surrender the stage to an aspect that has but recently presented itself to the speculative mind. In the concluding remarks of his report on alcohol treated from the standpoint of the chemist, in the "Report of the Committee of Fifty," Prof. Abel, of Johns Hopkins University, although strongly emphasizing the effects of alcohol as a highly toxic agent, finds it impossible to advocate the doctrine of total abstinence, on the ground that those who have not the physical or moral power to resist a tendency to excess, will in the long run be eliminated from the race for existence; in this way there would be evolved a human species possessing a higher degree of stability and invulnerability than at present. The same view has been recently echoed by Dr. Woods Hutchinson, before the Oregon State Conference of Charities and Correction, who extols alcohol as a virtue, as a powerful factor for the elimination of the unfit from society.

This ingenious application of the doctrine of evolution arouses the close attention of the sociologist no less than that of the biologist and clinician. A safe working hypothesis in solving many a scientific riddle, natural selection would seem in this instance to add another triumph to its list. Close analysis, however, reveals that here the principle of natural selection is misapplied.

There can be no doubt that alcohol has shattered the hopes and destroyed the lives of thousands and that it has succeeded in accomplishing this because it has encountered individuals enfeebled by the hereditary influences of psychical degeneration and by the physical and mental stresses of civilization. Bearing the mask of a kindly friend, a power to allay pain, relieve misery and produce the sensation of physical well-being, alcohol has, to be sure, acquitted itself as a skillful executioner, alluring its victims to gradual dissolution and branding the marks of degeneration upon their descendants.

This theory presupposes that he who falls prey to the fell hand of alcoholism is himself the bearer of the birthmark of degeneration. That this is true in a large proportion of cases cannot be questioned. Yet is it not a common experience that lives that have given promise of a healthy physical and mental development, have frequently succumbed to its insidious influences? Certain adverse circumstances of temporary illness, distress or pain, rather than hereditary influences, have in not a few instances been the determinating factors of many a case of morphinism and the like. This is probably no less true of alcoholism. Not only is this condition not solely dependent on degeneration for its production, but it is also one of the most potent influences that make for degeneration.

Instead of being hailed as an instrument with which nature threshes out the unfit from society, alcohol should rather be credited with but a limited sphere of influence in this connection. Its operations are far from being universal. Who would venture to assert that all degenerates are alcoholics, that all those whose numbers swell the ranks of the insane and the criminal classes are addicted to alcohol? To be sure, this treacherous drug is one of the chief causes of insanity and crime, yet the very fact that criminals and the insane are not always such because they have been alcoholics, proves the imperfection of this agent as a universal factor of elimination.

If nature requires toxic and pathologic agents as aids in the furtherance of her cosmic design, is it necessary to single out alcohol when tuberculosis decimates the ranks of the physically unfit and when a host of other infections lie in wait for those who come into the world with but a meager inheritance of resistive vitality? If it be admitted that these also are in the long run beneficial to the evolution of a better race, as is claimed for alcohol, then the art of medicine will no longer have any excuse for existence and treatment will be unjustifiable. One is here brought face to face with the same thought that presented itself to Huxley and Spencer, namely, that it is impossible to reconcile the processes of evolution with the aims of ethics. The conclusion is inevitable that alcoholism should be placed in the same category with other diseases as insidious foes of humanity, and it is in the interest of society to seek the real significance of the various factors such as predisposition, environment, climate and contagium, that lie at the basis of all of them, with the object of their extinction.

ECHOES AND NEWS.

NEW YORK.

Dr. Peterson Resigns.—Dr. Frederick Peterson has sent to Gov. Odell his resignation as a member of the State Commission in Lunacy. Dr. Peterson is President of the board and states that the duties of the position interfered with his private practice.

Clinical Assistants at Gouverneur.—The Trustees have appointed Dr. Stella Stevens Bradford and Dr. N. Gilbert Seymour Clinical Assistants to the Tuberculosis Clinic, Out-Patient Department of Gouverneur Hospital.

Opening of Medical Club Rooms.—The library and club rooms of the Eastern Medical Society in Clinton Hall, 151-153 Clinton Street, near Grand, were opened on Tuesday evening at 8 o'clock. Addresses were delivered by Dr. Abraham Jacobi, former Judge Julius M. Mayer, Dr. Kenneth M. Milliken, and Dr Joseph D. Bryant. A concert and supper followed.

Ratification of Unification Plans.—Up to March 1, the following County Societies in New York State have ratified the Joint Resolution of the State Society and State Association, Albany, Cayuga, Chemung, Dutchess, Franklin, Kings, Monroe, Oneida, Onondaga, Ontario, Rensselaer, Schenectady, Broome and New York.

Odell's Care of the Insane.—According to the *Sun*, "the 'business' Governor's unbusinesslike administration of the affairs of the State insane hospitals has culminated in the resignation of Dr. Frederick Peterson of New York City from the office of President of the State Commission in Lunacy. This, of course, is but the logical outcome of the Governor's methods of dealing with the insane in this State. The memorandum filed by the Governor when he approved the bill abolishing the boards of managers of the hospitals for the insane and centralizing the management in the hands of the State Commission in Lunacy at Albany, purported to give the reasons for such approval, but it bore on its face the readily distinguishable earmarks of the Hon. Goodwin Brown, a former legal member of the State Commission in Lunacy, who is reputed to have prepared it at the 'business' Governor's behest. Mr. Brown, it may be recalled, failed of reappointment at the end of his term as State Commissioner in Lunacy, although many powerful wires were worked in his behalf, because Gov. Roosevelt, to a considerable extent guided by the advice of the State Charities Aid Association, concluded that a change would not be prejudicial to the public interests. So William Church Osborne was appointed in Mr. Brown's place. In this memorandum the Governor says:

"'No department of government should have more earnest consideration than this which controls a population of over 23,000,' and in his arguments in behalf of the measure he said it was much better to take the power away from the boards of volunteer managers and to place it in the hands of men who could give all their time to the work. This is what the Governor said to the public. But his arrangement with the president of the Lunacy Commission was that he need give only two days a week to this work deserving such 'earnest consideration,' which includes the care of 25,000 insane people and an annual expenditure of approximating $5,000,000. So Dr. Peterson took the place, continued to attend to his extensive private practice in the city of New York and to devote a fraction of his time only to the duties of his great office. Last winter the legislature was obliged to authorize the State Commission in Lunacy to employ a medical inspector at $3,500 a year to relieve the president of the commission of a considerable portion of his work and responsibilities.

When Commissioner Osborne, the legal member of the Lunacy Commission, resigned his office because of disgust with Odellism in connection with the State hospitals and charities, Gov. Odell appointed the Hon. Daniel Lockwood of Buffalo to the vacant place. Commissioner Lockwood has a substantial law practice in Erie county, and he has been able to devote only a portion of his time to the affairs of the commission. With the 'medical' member and the 'legal' member of the Lunacy Commission giving so much time to their private business much of the work necessarily devolved upon the 'business' member of the commission, the Hon. William L. Parkhurst, of Canandaigua. Commissioner Parkhurst has doubtless done the best he could under the circumstances, with the advice and assistance of his fellow townsman, the Hon. John Raines, for whose entrance into politics Commissioner Parkhurst has said to have stood sponsor. But Commissioner Parkhurst, who really knew nothing about the insane until after he took office, is not as young as he once was, and for some time has not been in the best of health, so that the clerks in the lunacy department have had to run things to a considerable extent. Thus, despite the patching and other repairs, this beautiful machine designed by the Governor, with the advice and assistance of the Hon. Goodwin Brown, to give 'earnest consideration' to the care of the insane, has broken down to such an extent that important changes are urgently needed. As Commissioner Lockwood's term expires next December, it is said that the Governor during the present session will name the Hon. Goodwin Brown to succeed him. Then, with Commissioners Parkhurst and Brown as a majority of the Lunacy Commission, the Governor will have fully realized the political results flowing from his policy of centralization, and the medical member of the commission, no matter how reputable he may be, would be a nonentity so far as the administration of the affairs of the Commission in Lunacy would be concerned. Meanwhile it is pertinent to ask how the insane have fared under this system of neglect, with its large promise but lame performance. It is true that in the name of 'economy' they have been deprived of proper food, that they have been housed in three-story, non-fireproof structures, where formerly two-story buildings were used, and that the recovery rate shows a marked decrease. But who can ever know or tell the total amount of hardships and sorrow resulting from the change in management in the insane hospitals, so strenuously insisted upon by Gov. Odell?"

In Honor of Dr. D. B. St. John Roosa.—A number of distinguished men of this and other cities, including the foremost members of the medical profession, and of those prominent in literature, the law, finance, and the commercial world, gave a dinner in honor of Dr. D. B. St. John Roosa, "and to commemorate the twenty-one years since the inauguration of post-graduate medical instruction in this country," at Delmonico's, last Tuesday evening, March 1. Dr. William Osler, of Baltimore, presided at the dinner, which was given by the following gentlemen: William T. Bull, M.D.; Francis Delafield, M.D.; Bache Emmet, M.D.; Virgil P. Gibney, M.D.; Edward G. Janeway, M.D.; Wm. M. Polk, M.D.; A. A. Smith, M.D.; A. H. Smith, M.D.; Robert F. Weir, M.D.; Albert Vander Veer, M.D., Albany; A. W. Calhoun, M.D., Atlanta, Ga.; W. H. Welch, M.D., Baltimore; W. S. Halsted, M.D., Baltimore; C. I. Blake, M.D., Boston; M. H. Richardson, M.D., Boston; W. W. Keen, M.D., Philadelphia; J. H. Musser, M.D., Philadelphia; J. C. Wilson, M.D., Philadelphia; G. B. Johnston, M.D., Richmond; W. J. Mayo, M.D., Rochester, Minn.; James W. Alexander, Edward T. Bartlett, Cornelius N. Bliss, William D. Howells, Morris K. Jesup, Edward King, John E. Parsons, J. Edward Simmons, J. H. Van Amringe.

Dr. Roosa has been president of the Post-Graduate Medical School since its establishment in 1882. There were eight physicians of this city in the decisive movement which brought about the establishment of the Post-Graduate Medical School. Dr. Roosa is the only one of the eight still connected with the institution. The seven others were Dr. William A. Hammond, afterward surgeon-general; Dr. James L. Little, Dr. Frederick R. Sturgis, Dr. M. A. Pallen, Dr. Stephen Smith, Dr. Henry G. Piffard, and Dr. J. W. S. Gouley. They were from 1875 to 1882 the post-graduate medical faculty of the University of the City of New York. As such they were working under marked disadvantages, which they realized completely, but were unable to overcome. This was what caused the failure of the movement. For a long time the faculty sought to bring about an improvement of conditions, the separation of post-graduate pupils from those not yet graduated, the proper distinction between first-year men and those of the second year, and between these and third-year men, and the upshot of it was that on April 4, 1882, the eight members of the faculty resigned. The resignations were accepted. Thus the Post-Graduate Medical School was born, the eight secessionists renting rooms in the old College of Pharmacy in Twenty-third Street, between Second and Third avenues, and going on with their work as if nothing had happened. For a year and a half they remained in Twenty-third Street, and then went into Twentieth Street, first renting and then buying the property now occupied by the Columbus Hospital at No. 226 East Twentieth Street. The next move was the erection, five years ago, of the fine structure at Twentieth Street and Second Avenue, which is a hospital with 207 beds, as well as a school for post-graduate instruction. Of the advantages of post-graduate courses, Dr. Roosa said: "Post-graduate medical instruction is an essential. The more thorough a man's training in his medical school has been, the more valuable to him is a post-graduate course. The character of the instruction in the Post-Graduate Medical School is similar to that given in such institutions in Berlin and Vienna, save that we have amplified it; in fact, in Prussia they imitate us now. We have between 600 and 700 pupils yearly, many from Canada, and occasionally one from Europe. Most of the pupils have been engaged in the practice of medicine, because when a physician or surgeon finds, for instance, that the demands of his practice are very great, say, by way of example, in a matter of surgery, he can come to this city, enter a post-graduate class, and make a most careful, exhaustive study of the particular surgical question. He can perform a desired operation two or three times upon the dead; he can assist when it is performed upon the living, and thus gain reliance and skill to enable him to perform it himself. We teach physicians how to do things. In their undergraduate work they watch their preceptors perform operations; in our work they perform the operations under the guidance of their preceptors. Also we teach laboratory work very thoroughly. This has become such an important factor in the medical science of the day that we devote a great deal of attention to it, for by its agency the medical profession has been able to determine many things of which, in former years, it knew but little. So, in order that a physician or surgeon may be able to do good work he must take a post-graduate course. New York's work in the direction has been followed by the establishment of post-graduate schools in Philadelphia and Chicago, and other cities. In my early days there was no such thing as post-graduate instruction in this

country, and in 1863 I had to go to Berlin and Vienna for a post-graduate course."

Dinner to Dr. M. Nitze.—On March 9 will be the twenty-fifth anniversary of the first demonstration of the cystoscope by Prof. Max Nitze. A committee consisting of Prof. Carl Posner, Dr. Hans R. Wossidlo and Dr. H. Goldschmidt of Berlin, has been charged to arrange a celebration of the occasion. A part thereof will be the presentation of an address, to which it is proposed to attach the signatures of those who have a general or special interest in genito-urinary diseases. The undersigned is authorized to obtain the signatures of those American colleagues who may desire to be thus represented in the address. As it will be impossible to obtain the signatures in time to reproduce them on the address, the committee suggests that a congratulatory cablegram precede them. The following cablegram is therefore submitted, to be cabled on March 9: "Professor Max Nitze, Berlin: Your colleagues and pupils congratulate themselves and the profession on the twenty-fifth anniversary of the demonstration of the cystoscope. Vivat Magister!" To be followed by the names of those who desire to have this done. The wording of the above cablegram will be changed in accord with such suggestions as may be made. Physicians desiring to have their names signed to the cablegram should address the undersigned. In such an event calculate 25 cents for each word of signature and address. F. Valentine, 31 West Sixty-first Street, New York.

PHILADELPHIA.

Fire in Dental College.—A fire which originated in an anatomical room of the Pennsylvania Dental College on February 24, damaged the building and contents to the extent of $5,000. The 150 students and 30 patients who were in the building at the time succeeded in getting out safely. The loss was confined mainly to anatomical specimens, preparations, and charts.

Wood Alcohol Found in Whisky.—The discovery that wood alcohol is largely used for the adulteration of whisky in Philadelphia and vicinity has been made by the State Dairy and Food Commissioner. Prosecutions against dealers in the country districts have begun and others are to follow. Analyses show that more than 60 per cent. of the samples obtained by the agents contain a dangerous percentage of the adulterant.

Local Nurses Will Go to Japan.—It is stated that at a recent meeting of the local Red Cross Society it was decided to send ten trained nurses from this city to care for the wounded soldiers of Japan. A fund of $5,000 must first be raised to fully equip the nurses for service. They are to be under the charge of Dr. Anita McGee, of Washington, D. C., but the whole management of the enterprise is to be assumed by the society of this city which is not in affiliation with the National Red Cross Society. Only nurses with Spanish-American war experience will be eligible.

State Tuberculosis Commission Organizes.—The commission appointed by the Governor to assist the State Live Stock Sanitary Board in formulating rules for the guidance of meat inspectors met at Harrisburg, February 26. Organization was effected by the election of Governor Pennypacker as President; Drs. C. B. Penrose and C. Y. White, both of Philadelphia, as Vice-President and Secretary, respectively. Sections were formed to report at a future meeting on the relation of bovine to human tuberculosis; foreign methods of dealing with tuberculous cattle; the pathology of bovine tuberculosis, and methods of disposing of tuberculous meat and cattle in Pennsylvania. The next meeting will be held in April.

Railroad Hospital Cars.—Four hospital cars of special design are to be built for the Pennsylvania Railroad. They will contain a morgue, operating room, beds for the injured, supplies and quarters for physicians, nurses and attendants. The cars will be kept at the division terminals of Philadelphia, Harrisburg, Altoona, and Pittsburg and will be in readiness day or night to furnish prompt relief at wrecks.

Report on the Butler Epidemic.—At the meeting of the State Board of Health held February 27, a report on the recent typhoid epidemic at Butler was made and adopted. As a result of the epidemic, 105 persons lost their lives. The report contained the following recommendations: (1) The absolute necessity for the prompt reporting of every case of typhoid fever to the Health Department; (2) at least weekly bacteriological tests of the water supply, and the monthly patrolling by health officers of the watersheds of the State; (3) the insistence on the part of the health authorities that all water be boiled before being used in a community, when an unusual number of cases of typhoid develop; (4) the slow sand filtration of all water, as this system of filtration will intercept typhoid fever germs. The report was approved and 5,000 copies ordered to be distributed throughout the State.

CHICAGO.

St. Elizabeth's Hospital Report.—A report of the work done at this hospital during the last year has been issued. It shows that 2,240 patients were treated, no remuneration having been received in 411 cases.

Requests of Health Commissioner Reynolds Denied.—The Finance Committee of the City Council has denied the requests of Health Commissioner Reynolds for increases of $15,000 for vaccination expenses; $10,000 for antitoxin; $32,000 for more sanitary inspectors, and $2,500 for more tenement house inspectors.

Original Research Regarding Human Perspiration.—In a paper on this subject, Dr. Julius H. Hoelscher, of this city, details reports of experiments on the human perspiration under the influence of drugs and in certain pathologic conditions. After a thorough cleansing, he enveloped his subjects in sterile gauze and over this secured an oil cloth. The subject was then subjected to dry heat, not over 120° F., for one to two hours. When the point of tolerance had been reached, the soaked gauze was quickly removed, submitted to pressure, and the sweat collected, the amounts ranging from three to thirty-two ounces. He offers the following deductions from the experiments conducted: (1) The hot air causes an aseptic fever or temperature elevation, despite the antipyretic action of acetanilid, sodium salicylate and quinine. (2) The hot air bath is of decided value in acute and chronic uremia, shown by the fact that the perspiration contains a considerable excess of urea and nitrogen. (3) In articular rheumatism in conjunction with salicylates, the hot air bath gives more rapid results and lessens cinchonism. (4) Certain types of myocarditis seem to be benefited by the hot air bath, and he reports a case. (5) Pilocarpine should never be used without the aid of hot air applications to the body. So combined, there is no sialagogue and less toxic drug effect, and far more sweating than otherwise. (6) Three cases of

catarrhal jaundice were sweated; all the tests failed to show bile pigments, only the epithelial debris containing bile deposits. (7) Modern sugar tests failed to reveal sugar in the sweat from diabetics. (8) A case of chronic constipation and indicanuria did not disclose the presence of indol or skatol in the sweat. (9) As regards the function of eliminating normal and abnormal substances, the skin is not to be compared with the kidneys. (10) Free sweating seems to favorably affect psoriasis, though further study is required, as also the effect on other skin diseases. Lastly, 1,000 c.c. of sweat contains about 11.5 gm. of solids (nearly 3 drams), one-half inorganic and one-half organic, and about .6 gm. (9 grains) of urea and .47 gm. (8 grains) of nitrogen.

The Use of the Cystoscope in Catheterizing the Ureters as a Means of Diagnosis in Surgical Diseases of the Kidneys.—Dr. Louis E. Schmidt read a paper on this subject before a recent meeting of the Chicago Medical Society. He stated that examination of the bladder, catheterization of the ureters, examinations of the functional activity of the kidneys by examining separately the collected urines, especially with the aid of cryoscopy and radiography give almost certain information by which one may be safely guided in this field of operative work. As to cystoscopy, every diagnostician agrees as to its true value in this work. With the help of the cystoscope the presence of only one or of two ureteral openings can be determined, and whether or not clear, turbid, blood-tinged, or colored urine is being secreted from one or both sides. The appearance of the ureteral orifices, torn after the passage of stone, as reported by Halban, inflammatory signs of the mucosa, or tuberculous processes, papillomatous growths about the urethral orifice may designate descending processes. After inbibition per mouth of methylene blue, the urine becomes tinged green in from fifteen to thirteen minutes in the case of a normally secreting kidney. The greater the amount of parenchyma destroyed, the longer the time which elapses previous to the appearance of the tinged urine. Voelcker and Joseph have injected 16 centigrams of indigo-carmine into the gluteal muscles. It begins to make its appearance in the urine in from fifteen to thirty minutes. It has the advantage of being excreted solely by the kidneys, and is harmless. The same authors gave individuals iodide of potassium and filled the bladder with a solution of peroxide of hydrogen containing starch. As soon as the iodide of potassium was being excreted, the urinary whirl became of a bluish color. Where catheterization of the ureters or segregation is impossible or undesirable, where the ureteral openings cannot be seen, it is possible by means of a cystoscopic examination to make some deductions as to the functional activity of the kidneys when considering the foregoing points. Besides, it is possible to ascertain approximately the functional activity by watching the frequency and force of each contraction, the quantity of urine which is expelled at each contraction of the ureter, and also some idea as to the ascent or descent of the whirl when the bladder is filled with fluids of varying specific gravities. Reference was made to the use of the different segregators. After considering the advantages and disadvantages of the various methods, the author said that ureteral catheterization is constantly becoming more popular. While he does not care to make a comparison of segregation and catheterization of the ureters, he believes there are but few, if any, authentic cases of infection of the ureter following catheterization. There can be no question in the minds of those who have followed the subject, and who have had practical experience, that the establishment of the functional activity by the examination of the urine gained by ureteral catheterization is the most important achievement in renal surgery. In addition, certain information which is of importance in every case is derived by ureteral catheterization, which any one of the segregators and cystoscopy alone cannot give. It is a method of diagnosis which can give valuable information in both ureteral and renal affections. Where a stone in the ureter has been diagnosed and the skiagraph shows it to be correct, Kolischer, Caspar, Hausmann, and the author have been able to inject sterilized liquid vaseline, which has been sufficient to cause contractions and to loosen the stone and cause the spontaneous expulsion of it into the bladder, and then subsequently to be passed naturally per urethram. It is not to be forgotten that when a catheter or bougie is in place, it can be used as a guide in ureterotomy, and also to locate and prevent traumatism of the ureter whenever bound down by tumors or inflammatory processes. Whenever performing a plastic or other operation, on the pelvis or kidneys, a bougie in place may serve as a guide. For draining the pelvis in cases of pyelitis and flushing it out and treating it, nitrate of silver, or other solutions have long been in vogue, and in some cases with positive results.

GENERAL.

Cars for the Tuberculous.—Consumptives may be barred from first-class Pullman cars on the Santa Fé Railway. The plan involves the running of hospital cars at intervals on through trains. These cars will be specially equipped, and no one except sick persons will be allowed to ride in them. This innovation in train operation will be put into effect between Chicago and Kansas City to Colorado and New Mexico health resorts, and to California points, over practically the entire system. The care of consumptives has always been a burden to the railroads. After a berth has been occupied by a consumptive, it must remain unoccupied until the end of the run, when it is disinfected. This precaution for the care of health of the traveling public involves expense.

Dr. Gorgas for Canal Commissioner.—The Committee on Medical Legislation of the American Medical Association has asked the President to appoint on the Panama Canal Commission a representative of the medical profession, and has recommended Col. William C. Gorgas, a surgeon in the army, for the place. It is urged that "under both of the French administrations at the Isthmus the engineering problems themselves, to the chagrin of the medical profession of the world, failed of accomplishment largely through the frightful mortality among officers and laborers consequent upon lack of authority on the part of medical officers entrusted with the work of sanitation; that the same conditions of insalubrity exist now that existed then, and that consequently the sanitary problems are to be recognized as second in importance, if second at all, only to those connected with the engineering department."

Prof. Loeb's Studies in Infection and Immunity.—Dr. Jacques Loeb of the University of California has thrown some light upon the problem of infection and immunity from disease in recent experiments made in the fertilization of the egg of the sea-urchin with the sperm of various species of star-

fish and holothurian. The key to Dr. Loeb's hypothesis is found in the fact that fertilization in different cases has been found to depend upon slight variations in the constituents of the sea water used. Arguing from this, Dr. Loeb says there is reason to believe that the predisposition to infection in the human body may depend on equally slight variations in the constitution of the liquids of the body. The presumption, then, is that when the right variations are found and the manner of producing these safely and surely is determined, science's great battle against disease will be near an end. It is reported that taking the eggs of the sea urchin, Dr. Loeb, in his laboratory at Berkeley, has been able to fertilize them with the sperm of such species of starfish as the asterias, the brittle-stars, and the twenty-ray starfish; also with the sperm of the *Holothurian cucumaria*. Hybridization of different species was sometimes possible under these conditions, and sometimes impossible. The addition of a small amount of sodium carbonate to sea water made a new series of differences, all of which have the great est significance. Dr. Loeb generalizes from this fact as follows: "The fact that the possibility of fertilization depends on the presence or absence in the surrounding solution of mere traces or very minute quantities of certain substances gives rise to the idea that the main variable determining the entrance of the spermatozoon into the egg may be of the nature of surface tension or a function of the latter. This idea would also harmonize with the fact that there are great individual variations in the sperm of the starfish of the same species in its power of fertilizing the egg of the sea urchin. These facts may have some bearing on the problem of infection and immunity. Especially that which we call the predisposition for an infection may depend on equally slight variations in the constitution of the liquids of our body as the variations on which the fertilization of the sea urchin eggs with the sperm of the star-fish in sea water depend. If our supposition be correct that in the latter case the controlling variable is of the nature of surface tension, it stands to reason that the variable in the case of the individual predisposition for infection is also of this nature."

Proposed Army Medical Reserve Corps.—"The position of contract surgeon in the army is sought to be abolished by a bill introduced by Senator Proctor on the recommendation of Surgeon-General O'Reilly," says the *Evening Post*. "The army employs at present about 200 contract surgeons, who are civilians, and cost the Government more than would an equal number of young commissioned officers. This does not include the physicians who are occasionally called in for short periods for such services as the physical examination of men at recruiting stations. The position of contract surgeons is anomalous in many ways. Irrespective of their professional skill the common soldiers do not regard these men in the same way as the regular army surgeons. They are not treated as officers, and, though they wear a uniform, it bears no insignia of rank. In place of the body of contract surgeons, Senator Proctor's bill creates a 'medical reserve corps.' The President is authorized to issue commissions as first lieutenants in this corps to graduates of reputable schools of medicine, who are properly qualified. Contract surgeons now in the military service, if recommended by the surgeon-general, are eligible without further examination. The holder of a commission in the medical reserve corps is to have the authority, rights and privileges of a commissioned officer of the same grade in the regular medical corps, except as regards promotions, during the time he is actually called into active duty. The pay and allowances of first lieutenants of the medical corps shall be given to them for the same period. The system is made flexible by a clause providing that no officer of the medical reserve corps shall be ordered into active duty, if he is unwilling to accept such service, and by another clause which permits such officers to serve with the militia or volunteers, or in any other capacity under the national Government. The cost of the change, according to the surgeon-general's estimate, would at first be no greater than under the present system, though at the end of four years it will cost some $50,000 more. The problem of supplying medical service to the army is in many ways a peculiar one. A civilian surgeon may be perfectly competent to attend to wounds in a hospital and look after such purely professional duties, but his experience does not fit him for the administrative part of his work—the organization of field hospitals, the transportation of the wounded, and such purely military matters. Even for such work as examining recruits, civilian physicians are not always equipped. Many, of course, have served as life insurance examiners, but the point of view of that work is different. The insurance company wants to insure the applicant if this can be done with but little hazard, while the Government does not want to take any chances whatever with a recruit. Defects, often, which impair a man for military service do not shorten his life. Thus in many ways it is of great value to have on call a body of men who are somewhat experienced in the particular kind of work that they may be required to do for the men of the army."

Tenth International Congress of Ophthalmology.—The Committee of the Tenth International Congress of Ophthalmology has authorized Prof. Dr. A. Siegrist, of Bern, Director of the Ophthalmological Clinic of the University, Bern, with the preparations for the appropriate exhibition of all scientific apparatus, instruments, and the various appliances for instruction, which will be sent to the Congress. He therefore requests all colleagues, as well as all scientific, optical and mechanical firms who wish to exhibit any objects at the International Ophthalmological Congress in Lucerne to apply to him before July 1, 1904, giving an exact statement of the object to be exhibited, of the space demanded, and of the kind and strength of electric force which may be required. Objects which are announced later can only be accepted as far as the space at disposal will still allow.

First French Congress of Climatotherapy and Hygiene of Towns.—As has already been announced, this Congress will be held at Nice, April 4 to 9, under the presidence of Professor Chantemesse, of Paris, member of the Academy of Medicine. The members of the Congress will be allowed reductions (50 o/o and upward), the greater part available from April 1 to 20, 1904, on the great railway lines of France, the south of France and Corsica; on certain English railways (London to Paris) on the steam liners, running between Nice, Marseilles, Corsica, Genoa; on the Italian railways; on sleeping-cars in France and abroad. Reduced prices have already been conceded at the chief hotels in Nice, Beaulieu s/m, Cannes, Mentone, Monaco, etc., a list of which will be supplied, on application to Dr. Camous, 2 rue de l'Opéra, Nice, specially charged with this matter. Outside of Nice, the members of

the Congress will officially visit Monaco, Mentone, Cannes and Grasse, where fêtes and excursions will be organized in their honor. His Serene Highness, the Prince of Monaco, will hold a reception at the palace, and there will be a gala representation at the casino. At Nice, besides the reception by the authorities, there will be gala representations (opera, etc.). The number of places, limited in the theaters, will be reserved to the first booked. After the close of the Congress, excursions will be organized. Medical students, the families of the members, accompanying the latter, and adhering to the Congress (special ticket, 10 frs.), will enjoy the same advantages. In order to take part in the Congress, it suffices to remit to Dr. Bonnal, Treasurer, 19 boulevard Victor Hugo, Nice, the amount of the subscription (20 francs), together with names, qualities, titles, exact address very legibly written, and accompanied with the subscriber's visiting card. Members desirous of making any communication are requested to send the title and summary of it (30 lines in 8vo) to the Secretary-General before February 20, so that they may be published and distributed before the meeting of the Congress. For further information, apply to Dr. Hérard de Bessé, General Secretary, Beaulieu s/m, Alp.-Marit.

OBITUARY.

Dr. Ogden Ludlow, of New York, died last Wednesday of typhoid fever.

Dr. R. J. Wilding, of Malone, N. Y., Secretary of the State Medical Society, died suddenly Wednesday night of heart disease, aged sixty-seven years.

Dr. David D. Toal died on Friday last. He lived at 151 Avenue B and was known to nearly every man, woman and child in the region. Dr. Toal was born in Ireland 66 years ago. His parents brought him here when he was two years old. They were poor, and he managed to educate himself by working in a shop and studying nights. He was graduated from the University Medical College in 1867, and began practice in East Eleventh Street.

Dr. Emory Potter, the leading Prohibitionist in Saratoga County and chairman of the county committee, died suddenly of heart failure at his Elmwood Hall home on Saturday night. He was stricken with pneumonia on Tuesday last. He was a native of Union Valley, Cortland County, N. Y., and made Saratoga Springs his permanent home twenty-seven years ago.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, February 13.

THE MEDICAL EXAMINATIONS OF THE UNIVERSITY OF OXFORD—PROPOSED SAFEGUARD AGAINST LIVE BURIAL—LONDON SCHOOL OF MEDICINE FOR WOMEN.

In a previous letter mention was made of Sir John Burdon-Sanderson's resignation of the Regius Professorship of Medicine at Oxford, and of the fight for the vacant chair that followed thereupon. The teachers of the Faculty are anxious that the Chair of Medicine should be converted into one of Pathology, which they wish to see filled by Dr. James Ritchie, at present Reader in that subject. The medical graduates of Oxford, of whom there is a considerable body in London, are strenuously resisting this proposal, on the ground that a man is wanted who has a practical knowledge of the requirements of the medical practitioner and of the details of qualifying examinations in accordance with the standard approved by the General Medical Council. The true inwardness of the situation is that a year and a half ago the clinical parts of the Oxford Final Examination for the degrees of Bachelor of Medicine and Surgery were pronounced to be seriously deficient by the Visitors of the Council. The Oxford men naturally resented this criticism, but could not wholly deny its justice. They laid the blame for the shortcomings of the examination, however, on Sir John Burdon-Sanderson, who, it was alleged, had neglected his duty. Sanderson, it should be stated, is devoted to pure science. He walks through life, striking the stars with lofty head, as Horace says, and taking no heed of the practical applications of scientific truths. He is absent-minded and forgetful of things which he looks upon as trifles, and those who know him best are most ready to believe that, with the highest aspirations and the noblest motives, he has failed to bring his mind down to earth in the matter of examinations in terrestial matters like medicine, surgery and obstetrics. Such "bread studies" do not interest him, and the result is that a standard of knowledge of the healing art such as might be expected in a great University has not been insisted upon. This is clearly shown by the Report of the Visitors, which is published in the *Minutes* of the General Medical Council for 1903, just issued. The Visitors state that they were present during the entire examination of five candidates in Clinical Medicine. The following is their account of the adventures of two of these: "The first of the candidates that we heard examined was taken to the bedside of a man who presented every appearance of being in an advanced stage of phthisis. The candidate was told to interrogate the patient; and—having elicited from him that he had pain in the chest, severe cough, and had wasted greatly—when asked what was probably the nature of the man's illness, said that it looked like one of cardiac disease. Some surprise having been shown at this answer, he expressed the opinion that the case might be 'gastric.' He was then told to examine the patient. He first proceeded to auscultate the heart. Asked why he examined that organ first after the personal history he had obtained, and if he had found anything there to account for the man's symptoms, he hesitated, and eventually said that there was no cardiac disease. He had then to be told to examine the lungs; and was asked if he noticed any difference in movement between the two sides of the chest in respiration, and other suggestive questions. Finally he said there was a cavity in the apex of the left lung, but he could not say on what signs he based that statement. He was then directed to examine the right lung, and asked if he could detect any evidence of disease there; and it was suggested to him as to the diagnosis that both the patient's lungs were affected, the left lung more than the right. The candidate was particularly defective in his ideas as to the treatment of pulmonary phthisis, in respect to the general advice to be given, the precise instructions for the patient, and special treatment for symptoms, *e.g.*, cough. He was given 5 out of 20 marks for this case. His examiner showed him great consideration, and spent twenty-eight minutes with him on the case. This candidate's case for commentary was that of a young woman with double aortic valve disease. He wrote a fair report of the case, which he read out to the examiners, but he did not set down any diagnosis of the valvular lesion, although he gave the characteristic physical signs of it that were present. He was marked 15 out of 20 for this case, making a total of 20 out of the 40 marks assigned by the examiners for the clinical examination. Another candidate was told to examine the greatly enlarged abdomen of a boy and to make

out what the cause of the enlargement was. He did not ascertain, until the examiner told him, that the patient's liver was greatly enlarged. Asked what this enlargement was due to, he replied, 'alcoholic cirrhosis.' Told that such a cause was improbable in a young lad like the patient, he suggested, with equal impropriety, 'lardaceous liver.' The candidate was then directed to examine the boy's heart, and at once found 'a murmur.' (There was a double mitral murmur). He then said it was a 'cardiac liver.' Notwithstanding this candidate's deficiency in clinical acumen, he was given 10 out of 20 marks. His case for commentary was that of a young woman with nephritis, after probable scarlet fever. The report he wrote upon the case was fairly good, except that he gave neither diagnosis nor treatment. When examined orally on the case, however, he stated its probable nature. But he was 'weak' on the pathological changes in the kidney in cases of scarlatinal nephritis and upon the prognosis in such cases as compared with cases of ordinary nephritis. He was able to contrast fairly the characters of the urine in different forms of renal disease. His mark for this case was 15. Total for clinical, 25 out of 40. The answer of this candidate to one of the questions on the medicine paper was endorsed by one of the examiners as being 'very meager.' Both these candidates passed. If these men are to be taken as representative specimens, it is not surprising that the Visitors reported that 'the clinical work of several of the candidates was decidedly below the average; and in passing some of them the examiners . . . were inclined to be too lenient.'" In respect of pathology and bacteriology the examination was declared to be excellent; it was only in the practical subjects that it was deficient. It should be mentioned that men do not learn their medicine, surgery and midwifery at Oxford, but for the most part at the great hospitals in London; and the clinical examiners in the instance referred to were London men. The Visitors, Sir Christopher Nixon and the late Sir George Duffey, were both Dublin men, and it is probable that racial prejudice had a certain influence on their judgment. The same factor is seen at work when Scottish examinations are "visited" by Englishmen or Irish examinations by Scotsmen. But Oxford, whose medical degrees now stand highest in the estimation of the British public, should be above all possibility of reproach.

Every now and again some one makes the public's flesh creep with sensational statements about the danger of live burial. We have even a London Association for the Prevention of Premature Burial, which exists to impress the fear of this occurrence on people's minds. This cheerful body recently held its annual meeting, at which it was pointed out that, on the admission of the Home Secretary, 10,000 persons are buried every year in England and Wales without the formality of a death certificate; and that death certificates are frequently granted by medical practitioners without any careful inspection of the body, and without the use of any special tests to ascertain whether or not life is extinct. Often, indeed, the certificate is given simply on the information of some relative or friend, by a doctor who does not take the trouble even to view the body. With a view to remedying these evils the Association has drawn up a draft Bill enacting that no certificate shall be given without a personal examination and inspection of the body, and requiring the local sanitary authorities to provide waiting mortuaries in their respective districts. Mr. William Tebb, the president of the Association, in speaking of the difficulty of verifying cases of premature burial, said that in England there were about 800,000 burials a year, and only about one body in 50,000 was exhumed. He added that in the United States, where cemeteries were frequently moved, however, a considerable number of bodies had been found in the coffins in such attitudes as proved that they must have been buried in a state of suspended animation. Moreover, he said, narrow escapes were constantly being reported; there was one case in which a lady, who was subject to trance, had twice been placed in her coffin. In an appendix to the Association's annual report a number of alleged instances of narrow escapes from premature burial are reported. At the meeting the startling announcement was made that there was a lady in the room who had twice been in her coffin, and who had her death certificate in her pocket at that moment. It appears that the lady is subject to cataleptic trances, which on three occasions are said to have placed her in imminent danger of live burial. Naturally, after so sensational a statement, she became the prey of the interviewer. To his eager ear she confided the following strange story, which I give in her own words, as reported: "My first trance was brought about by shock. I was told that all my property had been lost. The news was quite unexpected, and it sent me into hysterics. Then I passed into insensibility, and at the end of two hours my limbs began to assume the rigidity of death. My eyes were open, and I could see what was happening, but I was unable to move hand or foot or to show that life had not yet left my body. Imagine my horror, when, after being left for twenty-four hours, I was taken from bed and rolled on the floor. Pins and needles were stuck in my body in order to see whether blood would flow. Fortunately I could feel no bodily pain, but the strain on my mind was terrible. After this every one gave me up for dead. 'Poor lady, I am afraid she is now out of all earthly suffering,' I remember hearing the doctor say. Oh! the terror of that moment! Worse was, however, to come, for the order for my coffin was given. When the undertaker's men came to measure me I tried to shriek aloud, but not a sound came from my bloodless lips. I could not have been more helpless had the Angel of Death in reality taken my soul. The final agony came when my coffin was brought into the room. At sight of that gruesome object placed by my beside, I felt as if my brain—or what was left of it—would finally break under its futile efforts to assert itself. I then lapsed into unconsciousness for the first time for forty-eight hours." Her daughter, however, had never quite given up hope, and she rose from her bed in the middle of the night to visit her mother for the last time. As she gazed on the body she thought she saw a movement of the eyelids. Hastily summoning the servants, she held a bottle of strong smelling-salts to the nostrils, and in her agitation spilt part of the contents over the unconscious woman's face. "At this," said the lady, "I heaved a deep sigh, and suddenly sat up in my bed. Saved by my daughter's love and energy." The heroine of this story is said to be a "Doctor of Psychology"—a degree, by the way, unknown to the universities of this country—and the tone of her narrative would be sufficient, without the history of cataleptic trances, to show that she is highly neurotic. But, though the story is highly colored, there seems to be no reason to doubt its substantial truth. Perhaps the medical profession is a little too prone to scoff at the possibility of such occurrences. Yet in some cases, at any rate, similar facts are well authenticated. Some forty years ago there was a discussion on premature burial in the French Senate, and the subject was treated by most of the speakers in the usual spirit of skepticism. Then the Cardinal Archbishop of Bordeaux—Donnet, I think, was his name—arose and told how at a great ecclesiastical function in very hot weather a young priest fell down, to all appearance insensible. He was removed to his dwelling, but all attempts to revive him proved

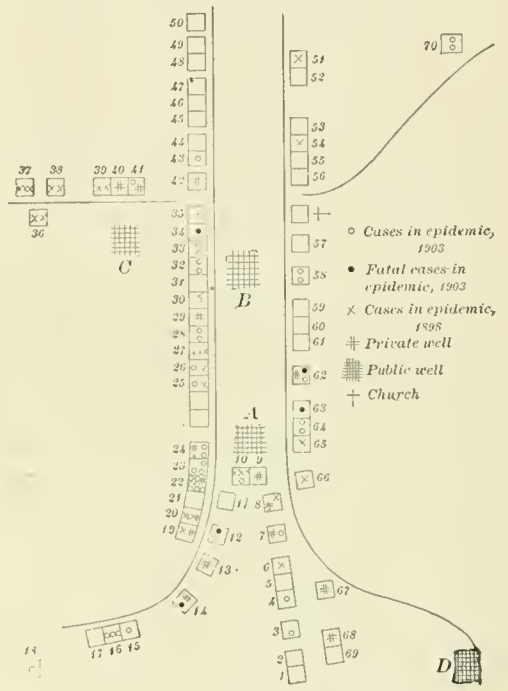
futile. He was pronounced to be dead, and in due course the body was placed in a coffin and taken to a church for the funeral rites. The supposed corpse heard all that passed, and was fully aware of the dreadful danger that threatened him, but could not move hand or foot, nor utter a sound. Just in the nick of time he heard the voice of a friend whom he had not seen since childhood. This quickened the paralyzed nerve centers into life, and saved him from a premature grave. The Cardinal's story was received with ironical laughter and calls for the name of the priest. A solemn silence came over the assembly when the venerable prelate replied, "Gentlemen, the young priest who thus narrowly escaped a hideous death now stands before you!"

At the annual meeting of the London School of Medicine for Women, which was held the other day, the report of the Council for 1902-3 was presented. The record of the year's work was very satisfactory; no fewer than forty students passed their final examinations and obtained the legal qualification to practice. Twenty-two of these took the M.B. Degree of the University of London, four the M.B. Degree of the University of Durham, one that of the University of Edinburgh, eight the Diploma of the Society of Apothecaries, and five the License of the Conjoint Colleges of Scotland. Neither Oxford nor Cambridge yet admits women to degrees in medicine or in any other faculty. Several exhibitions and scholarships were also won by girl students, upon one of whom was conferred the distinction of the Fellowship of the Royal College of Surgeons of Ireland. Several hospitals and infirmaries have for the first time appointed women to resident posts. Miss Alice Johnson, M.D., was selected from a large number of candidates as Medical Officer to the Lambeth Poor-Law School at Norwood. The Polyclinic and Medical Graduates' College has decided to admit medical women to all its work on the same terms as men. There are at present 200 students working at the school. Of these a third will go abroad as medical missionaries, while the others will spread themselves over London and the Provinces. According to the Secretary of the School the prejudice against the woman doctor is fast dying in this country and she is now generally accepted on her merits. It cannot be said, however, that in a scientific sense she has so far justified her existence here; and in the field of practice only one or two female practitioners have won anything that can be called distinction.

TYPHOID EPIDEMIOLOGY.

(Continued from Page 372.)

The village of Rathsweiler is built, as are the majority of the villages in Elsass, practically along one street, which is generally the highway of the district. It consists of 70 houses, the distribution of which is shown in the plan, copied from one prepared by the schoolmaster of the place. The houses themselves are generally of the most modest construction; the majority possess two stories, and no substructure. Except one or two, which are of stone, or partly of stone, all are built of wood. The buildings are so constructed as to accommodate both the owner's family, and the more valuable of his cattle, such as the horse and cows; the pigs and geese are, as a rule, relegated to the barn. As one enters such a building, one passes by a small door to one side of the entrance hall, into the stable, while, on the right, is the living room. On the same floor is the kitchen, and perhaps a sleeping room; on the floor above are other sleeping rooms. Closets or toilet rooms form no part of such an establishment. In the winter, the older members of the family make use of the stable, while the ejecta of the younger members are deposited in some receptacle which is emptied either there, or on the "Misthaufen" (dunghill) in the yard. In the summer, the act of defecation is frequently performed out of doors. The washing of the family linen and eating utensils is very often performed at the wells, or in the yard, with water brought thither. Another element



House.	Patient's Name.	Age, (Years.)	Beginning of Sickness.	Duration.
3	Jung	29	8—VIII	
7	Rauscher	8	16—V	6 weeks
9	Wittmer	4	15—VII	4 weeks
10	Rauscher	23	10—V	3 weeks
12	König	9	1—VII	
—		5	15—VII	12 weeks
15	Culli	12	18—VII	3 weeks
16	Greiner	16	18—VI	
—	Greiner	6	1—VI	9 weeks
—	Greiner	3	1—VIII	2 weeks
20	Roesser	37	—VII	4 weeks
22	Culli	64	—III	3 mos.
—	Rauch (1)	14	19—IV	
—	Rauch (2)	17	8—V	
—	Rauch (3)	8	16—V	
—	Rauch (4)	15	18—V	
—	Rauch (5)	38	23—V	
—	Rauch (6)	37	28—V	
23	Müller (1)	10	10—V	
—	Müller (2)	13	10—V	
—	Müller (3)	37	1—VI	
24	Döppen (1)	48	10—VI	
—	Döppen (2)	10	25—VII	
26	Culli	18	8—VII	
28	Pfister (1)	10	—V	
—	Pnster (2)	6	—VI	
32	Rauch (1)	7	15—V	
—	Rauch (2)	12	10—VI	
33	Ebi	32	29—V	
—	Güth	64	11—VII	
34	Wagner	47	6—VII	
41	Bicher	52	30—VI	
43	Nickler	5	4—VII	
58	Döppen (1)	68	1—VI	
—	Döppen (2)	26	25—VII	
62	Bude (1)	52	10—VII	
—	Bude (2)	17	10—VIII	
63	Bauer	37	27—VI	
64	Rauscher (1)	34	1—V	
—	Rauscher (2)	4	25—V	

in the hygienic conditions, to which some importance must be attached, is the ubiquitous "Misthaufen." Before every house is the dung heap, which is replenished as often as occasion demands from the feces of man and beast, which have accumulated in the stable. At the proper seasons this heap is piled into wheelbarrows or wagons, carted to the fields, and there applied as ma-

nure. When I protested against this most unsanitary method of disposing of the infectious material, the mayor informed me that the Misthaufen was the most valuable of the family assets: "Not even a beggar would stop at a door without its Misthaufen." The wells are of two classes, public and private, the location of both is in every case denoted on the accompanying plan. They are all of the most crude construction, being generally guarded only for a few feet, at most, from the surface by ill-fitting masonry, or defective cement; thus they are not at all immune from surface flooding. It is probable that they all take origin from the same underground stream or stratum of water, although this is a point on which I cannot speak with certainty. In one of the other villages in this district, which had attained a certain degree of prosperity owing to the possession of a valuable forest, the community was supplied by pipes with water from a well about 1½ mile distant. Upon inspection, I discovered that the top of this well lay about 4 feet from the surface, and that the masonry which lined it was anything but impervious. Above it lay a wheat field, which was periodically manured from the Misthäufen of the villagers. So much, by way of preliminary, regarding the economic and sanitary environment.

The epidemic in Rathsweiler started in March, in house No. 22 of the plan, with the widow Culli. This house possesses its own well. During the month of April, there was another case of typhoid (the second in the village) occurring in the same house. In May, all the other members of the household, who belonged to the Rauch family, presented symptoms of the disease. During the same month the next house, No. 23, contributed two victims, of the ages of seven and ten years, respectively; it is noteworthy that the older members of this household remained healthy during this period, although in the succeeding month one of them also succumbed. The people in this house were accustomed to get their water, as indicated on the chart by the arrow, from the well belonging to house No. 24. During the same month of May, house No. 10, which lies just opposite to No. 22, contributed one victim, a Rauscher, to the list; the members of this household got their water from the public well marked A. During the same month, two other members of an allied Rauscher family, living a step from house No. 10, in No. 64, fell sick of the disease. These also took their water from the same public well A; it will be observed that up to this time the other families supplied from this well remained apparently healthy. In house No. 32, owned by the Rauchs, who are near relatives of those in No. 22, in which, it will be remembered, the epidemic originated, a little Rauch child, of the age of seven years, presented symptoms about May 15. Very soon thereafter, a person named Ebi, aged thirty-two years, living in the neighboring house, No. 33, and in No. 28 a child of ten years, named Pfister, also became victims of the disease. This last set of three cases were all supplied with water from well B; yet, at this time, no other house of the same water-supply group contained any case. It now becomes very difficult to follow the course of the epidemic, inasmuch as three different centers have become established, namely, house No. 22, house No. 32, and house No. 64. House No. 23, which in May had contributed two victims, presented a third in the beginning of June, and house No. 24 gave one in June, another in July. Houses Nos. 25 and 26 each had one typhoid patient in July. Within the succeeding months, the houses running in the opposite direction from Nos. 23 and 10, namely, Nos. 20, 12, 14, 15, 16, and 3, had also become infected. The second center, house No. 32, had a second case in June, as did also No. 28, and the house directly opposite, No. 58. Houses Nos. 26 and 25, 33 and 34, 58, and 41 and 43, all had patients during July. From the third center, house No. 64, the infection reached No. 63 in June, and No. 62 had one case in July, another in August. This list about exhausts the cases in Rathsweiler in the epidemic of 1902, at least so far as they were identified. As a pendant, I should like to relate the occurrence of two other cases, which historically, at least, belong to this epidemic. During July, the minister of the neighboring village of Bütten felt impelled by his spiritual calling to visit the stricken town of Rathsweiler, which had no resident preacher. He had been warned of the danger of infection, and most scrupulously avoided touching his lips with food or drink during his brief visit of a few hours. Within two or three weeks, however, he developed a very severe typhoid, which remained the only case in Bütten, with the exception of his maid-servant, who fell sick shortly after him.

In describing the course of the epidemic, I have purposely presented it in the manner in which it seems to me to have made its progress, namely, from house to house. When a well becomes contaminated, and acts as a source of infection to the houses within the area which it supplies, we may reasonably expect two results: First, the typhoid appears like an explosion, and within a short time produces more or less of a pandemic. Second, fresh cases very soon cease to occur, inasmuch as there is a natural tendency of wells to self-purification, by virtue of the greater reproductive and vegetative activity of the non-pathogenic organisms which it contains. The epidemic of Rathsweiler, however, presents neither of these characteristics; it ran for five months. During this period it crept from house to house, heedless, apparently, of such barriers as are afforded by an independent water-supply, as exemplified by houses Nos. 22, 23 and 24. In some cases, its career was modified by infections due to personal intercourse, as illustrated by the members of the Rauscher households; but in no set of cases does there seem to have been any relation between the water supply and the course of the epidemic. One is induced to conclude that in the epidemic of Rathsweiler the circumstantial evidence points most strongly to a personal transmission of the infection, as long ago urged by Trousseau, and to the complete innocence of the water-supply in its dissemination. This is the more surprising, in view of the fact, as pointed out in the preliminary statement, that there was every possible occasion for the contamination of the wells by the surface drainage, which certainly carried particles of infected feces from the Misthäufen (dunghills).

If, then, Koch be justified in his assertion that "contact-infection" plays so large a rôle in these epidemics, it becomes important to inquire into the details of its workings. Koch himself supplies many instances. Nurses in washing or bathing typhoid cases *may* infect their hands or faces, and subsequently inadvertently transfer the particles to their mouths. Those who wash the infected linen are, of course, in particular danger. It is hardly necessary, perhaps, to explain that "contact-infection," so-called, does not imply the existence of an external portal of infection, *e.g.*, the skin. It is admitted that the germs in every case enter the body through the mouth. The point emphasized by the phrase is that the infection is direct, not mediated by a common water supply. One who drinks out of an infected glass is, in this sense, the victim of a "contact-infection." As a rule, however, it would seem that the hands first become contaminated, and then carry the poison to the mouth. Thus it is that anyone who enters the sickroom, who touches the hand of the patient, runs the risk of

infection. Koch goes so far as to warn men against laying a cigar down in an infected house, for infected dirt and dust lodge everywhere. To me, it always seemed that the greatest element of danger is the Misthaufen. Here, if anywhere, the typhoid bacillus finds a favorable environment, and the opportunity to prolong its life. The children, playing on their hands and knees in the yard, are almost certain to pick up infection, and to carry it to more distant families, as illustrated in the epidemic. Moreover, the men of the household, in removing the dung to the fields, are again very dangerously exposed. This is a source of peril which, I believe, hardly exists under our own conditions. The important therapeutic and prophylactic deduction from all these arguments is that each case should, as far as possible, be isolated. The family and friends should be excluded from admission to his room or house, and one person should be made responsible for the nursing. The dead are also to be kept isolated, and to be buried as early as possible. All excreta are, of course, to be at once disinfected; a careful watch is to be kept over the urine, which is often swarming with typhoid germs for months after recovery. In addition to observing all these precautions, we employed the services of a disinfector, who had to steam all the clothes and linen which had come in contact with the sick. These, and these alone, were the measures we took for controlling the epidemic; the water supply we completely neglected. Our results, nevertheless, were quite satisfactory, inasmuch as no new cases developed within two weeks after these prophylactic measures had been instituted. Parenthetically, I may state that many of the wells were frequently examined, chiefly by Altschuler's method, for the typhoid bacillus, but never with any success. This was done in the Strassburg Institute. I am, however, far from believing that such negative results may be taken as final evidence; the problem of identifying typhoid germs under such conditions has, unfortunately, not yet been solved.

In connection with prophylactic isolation, Koch has laid great stress upon the unidentified cases of typhoid, or typhus levissima. These cases are not sick enough to go to bed, yet carry about with them enormous numbers of typhoid germs. Every epidemic is accompanied by such cases, which are marked only by very slight symptoms—malaise, headache, bronchitis, or diarrhea. Nevertheless, if the stools of these individuals be carefully examined, or their urine after a time, it is generally possible to isolate the *agens morbi* in the shape of the typhoid bacillus. It goes without saying that just these cases are most dangerous to the community, inasmuch as they act as carriers and disseminators of the infection. Naturally, the danger is greatest under such conditions as prevail in villages such as Rathsweiler, and becomes minimal in large cities, with good sewage and drainage systems. This holds true, doubtless, of every kind of contact-infection; yet, as shown by hospital records, it is under all circumstances a factor to be reckoned as highly important.

I had originally intended to describe in some detail the work of the bacteriological laboratory in Diemeringen, but my letter has already assumed such disproportionate dimensions that this aspect of the "fliegende Station" must be excluded from consideration. I would but state that not only the Widal, but cultivation of the bacillus from the stools, urine, and, rarely, the sputum, were resorted to for the identification of every case of the disease.

Respectfully,

Richard Weil, M.D.,

Pathologist to the German Hospital, New York.

New York, Feb. 4, 1904.

THE MEDICAL SERVICE OF THE JAPANESE ARMY.

To the Editor of the Medical News:

Dear Sir: During the war between China and Japan in 1894-95 Sir William Taylor, M.D., now Director-General of the Medical Service of the British Army accompanied the Japanese force in the capacity of Attaché. The outcome of his observations was a valuable Report on the Medico-military Arrangements of the Japanese Army in the Field. It may be of interest at the present time to give a brief summary of his conclusions. He formed the opinion that "the organization of field hospitals, dressing stations, and bearer companies in the Japanese Army, is very complete, and that the regulations go into and deal with their administration in great detail. Neither of these organizations, however, was tried severely during the war; indeed, instead of employing the authorized number of field hospitals the work was carried on well with under one-third of them. The positions of the dressing stations were well selected, their sections arranged, and the wounded attended to as well as in any well-organized hospital in time of peace. Straw was spread under the shade of trees for the reception section, the patients were given beef tea or such other restoratives as were considered necessary, the regulations as to arms, accoutrements, personal properties, etc., were carried out, and the wounded carried to the dressing or operating section in the order of severity of the wounds received. Taylor says: "I saw nine wounded men brought into one dressing station in ten minutes, and, in turn, all properly attended to and sent back to the field hospital, which was in a village about 300 yards off. Everything in the way of equipment was there, and all the requirements for antiseptic surgery after the most approved methods. The instruments were laid out in sterilizing solution, and plentiful supplies of antiseptic dressings at hand. The first field dressings were removed, if necessary, the wounds carefully examined and dressed again after such treatment as was considered necessary. The tallies were always first examined. On one or two instances they told of good work having been done in the fighting line, when the lives of several men were saved by the ligature of arteries, or the timely application of a field tourniquet. There was no confusion or hurry; everything was done quietly and in that way which shows that all concerned were quite conversant with the duties they had to perform, and thoroughly competent; in short, there was every evidence of that efficiency which can only be the result of the most careful and complete training. At Wei-hai-wie, on January 30, during the attack, the efficiency of the regimental medical organization and of the bearer companies was demonstrated in the most splendid way. A regiment which had advanced into the middle of a flat sandy beach on the south side of the harbor suddenly found itself under the fire of three Chinese ships and four torpedo boats, all of which turned upon it their quick-firing guns from a distance of not more than 300 or 400 yards; in a very few seconds many men had been killed or wounded, and it was evident the regiment would soon be annihilated. The men were then made to lie down, and soon after they began to crawl or walk off the beach and get into the shelter of a ravine at some distance; there the regiment reformed; the dead and wounded were still on the field. Before all the men had reached the shelter of the ravine the medical officers, one by one, and at some distance from each other, accompanied each by two or more stretchers and some attendants, were seen to walk in different directions across the beach in the face of an incessant fire of bullets, which plowed up the sand in every direction.

They picked up the dead and sent them back, attended to and dressed the wounds of those still living, and in twenty minutes, stretcher bearers, attendants, and medical officers, walking quietly and coolly away, had removed every dead and wounded officer and man from the beach, the Chinese ships having kept up a continuous and terrific fire upon them all the time. It was a splendid deed of heroism which can never be forgotten, and of which the Japanese Army should be proud; but it was done as a matter of course and in the routine of duty, and we who saw it, and could not resist shouting 'bravo!' have never heard it referred to or spoken of. It will, however, be an enduring proof of the efficiency in the field of the Japanese medical service."

With regard to hospital ships and transports, Sir William Taylor says: "There were no hospital ships for the army. There was one which accompanied the fleet. She was a steel screw steamship of 2900.59 gross and 1645.2 net tonnage, and 387 horse power. She had accommodation for 50 officers and 200 men. The officers' accommodation was in the first-class cabins, which were roomy, well lighted, and warmed with steam-pipes, and were well ventilated. Each cabin had two good-sized iron beds, or cots, with wire-woven mattresses. About half were on the upper deck, and were particularly light and airy. They were reserved for the serious cases. They were lighted, as was every other part of the ship, with electric light. An operating room had been made by throwing two of these cabins, on the port side, into one, and putting in large glass windows. A special electric light was fitted over the operating table, and there was also a movable hand light. There was a plentiful supply of water in the room, which was also fitted with all the latest modern appliances for the special purpose for which it was intended. The second-class cabins were kept for warrant and petty officers. They were of similar construction, though not so highly finished as the first-class cabins. Each cabin had four iron cots with wire-woven mattresses. They were well lighted and warmed by steam. The men were accommodated in the freight hold, and on the main deck forward. There was space for 50 men on the main deck forward, 80 on the lower deck, and 70 aft, under the first-class saloon. They lay on platforms—not in bunks—raised about 18 inches from the deck. The space allowed for each man was 7 feet by 4½ feet. Each had a quilted mattress of cotton, a Japanese pillow, a pair of white sheets and two blankets marked with a red cross. The clothing for each consisted of a good flannel shirt and the usual wide-sleeved quilted, hospital gown, with a red cross on each sleeve. The patients were scrupulously clean and comfortable. There was a senior naval medical officer in charge, with six other officers under him, and a staff of pharmaceutists and attendants. There was a well-equipped dispensary and a liberal supply of surgical appliances and materials. The officer in charge had only to ask for what he wanted in the way of equipment; there was no scale of supply. There was a very good form of stretcher on board for embarking and disembarking helpless patients. It was made of two long bamboos with canvas between, the latter kept stretched by two cross-pieces of wood with iron rings at each end, which slipped on to the bamboos and kept them apart.

"There were some well-equipped military hospital transports. At the beginning of the war, transports carrying troops were not provided with medical officers, or any establishment, and unless the medical officers (or some of them) of a regiment happened to be on board, there was no medical aid at all. Many soldiers and followers were thus sent in transports without medical assistants, further than what the captain carried in the medicine chest he carried on passenger service. Later, it was found necessary to have a medical officer in each transport. He was generally a member of the Red Cross Society, and had as equipment a medicine chest belonging to the Society. There were also a pharmaceutist and two attendants, and a small quantity of hospital clothing. Besides the foregoing, after cholera appeared among the troops, appliances and materials for disinfecting were carried on board each transport, and when cases occurred at sea, that part of the ship in which it appeared was thoroughly disinfected, that is, as thoroughly as was possible in a crowded ship, during a voyage."

Under the head of Sanitary Arrangements, Sir W. Taylor says that "Although the regulations for the medical department in the field were called 'Orders for the Field Sanitary Service,' they did not refer to questions of sanitation at all. Such subjects as conservancy, latrines, urinals, prevention of the fouling of wells, or other sources of water supply were not dealt with. In short, there were no regulations with a view to ensuring satisfactory sanitary conditions. In practice, the same want of thought for all sanitary precautions, even the most ordinary, was evident. Hundreds of dead bodies were left for days where they fell, often in heaps, in the narrow streets and lanes of towns into which the army had entered to occupy permanently. Many hundreds were left lying for weeks, and even months, in the neighborhood of occupied towns, where, from the conformation of the country, all decaying or decayed matter must be washed down by the rain into wells. Even when it was thought advisable to bury them, it was done in such a perfunctory way that the burial was an outrageous farce. Bodies were heaped up in a shallow trench, not a foot deep, and merely covered with a sprinkling of earth, which the first shower must wash off. Some were thus sprinkled over without even the pretence of a trench; others were covered over in the drains for surface water. Corpses floated about in the harbor for days, or were laid in a shallow groove in the sand at low water, and washed up again when the tide rose. The surface soil all round such places was polluted, poisoned, and made pestilential, and only hot weather was wanted to make the atmosphere the same. Dogs scraped away the scanty sprinkling of earth in many of these cases, and tore the bodies to pieces, dragging the intestines all over the place; and, incomprehensible as it may seem, Chinese, belonging to the towns, looked on without thinking or driving the dogs from their ghastly feast upon the bodies of their own countrymen. Even in the neighborhood of hospitals the same indifference to surroundings, often painfully foul and noxious, was quite general. At one of the most important hospitals on the line of communications, the condition of the immediate neighborhood was so filthy that the stench was almost unbearable. Inside everything was clean and nice, but within a few yards of the entrance was a heap of filth which was the collection of months, or, perhaps, years, on which were lying rotten fish, dead cats, shellfish, and all sorts of similar things in every stage of putrescence. This seemingly universal indifference to the most insanitary surroundings existed till very near the end of the campaign. Later great activity was observed in sanitary measures, and everything was done to improve existing conditions. Temporary latrines and urinals were put up in different parts of the occupied towns, and drains made, sometimes, as at Kinchow, at very great expense. There, an elaborate system of drainage and sewerage was carried out, public latrines and urinals erected, and a regular system of conservancy established; wells were also cleansed and protected. The result was most satisfactory, as the town, which, at one time had every condition that was most likely to produce disease or epi-

demic, was almost free from diseases due to insanitary causes. It was no light undertaking to put into good sanitary state a town which had been occupied for hundreds of years by the filthiest people in the world, and their success at Kinchow only showed what the Japanese authorities could do when they took the matter into consideration, and made up their minds to attend to sanitation. It would be agreeable, as well as satisfactory, to be able to think that the neglect of ordinary sanitary precautions was at first due to uncertainty of occupation, or some similar cause, but that is not possible, for nothing could excuse the condition of the surroundings of some of the hospitals, as above described, even if they were only to be occupied for a few days."

Under the head of Water Supply, Taylor says that on a campaign like that in which the Japanese Army was engaged there was not much choice of water, and the troops were obliged to use what they could get. "Each battalion carries with it a box containing appliances and materials for the chemical analysis of water, and it is the duty of one of the medical officers to go on ahead to any proposed halting place, for the purpose of examining and reporting upon the water in the different wells of the place. That could not always be done in war time, but, when a village or town had been entered, no water was supposed to be drunk, or used for cooking, until the medical officer had reported upon it. Each battalion is directed to carry two wooden filters, bucket-shaped, with a layer of fine sand at the bottom, then one of coarse sand, and on the top one of gravel, each layer being separated by a piece of sponge cloth (? asbestos cloth). These filters were not always used. The water, it was ordered, should be boiled before being used for drinking, but that order was not always, or even commonly, carried out. It seemed to be nobody's duty to see it obeyed; besides, there was very often the greatest scarcity of fuel, so that the water could not be boiled. Each officer is supposed to possess a small pocket filter made of brass, filled with charcoal, with a piece of sponge over each opening between it and the charcoal. Two India rubber tubes were attached, one on each side, to small projecting openings in the brass; one of these tubes was put into the water and the other into the mouth. The Japanese, as a rule, drink very little water or, instead, I should say, very little cold water. They drink small quantities of the weak tea peculiar to the country, and that tea was always to be had with the army, except on occasions when men were away from the main body and all supplies. They were very fond of eating snow, and many of them devoured large quantities of it, but I could trace or hear of no cases of disease due to that practice."

The treatment of gunshot wounds is described in considerable detail. "The first field dressing consists of two folded pieces of corrosive sublimate gauze, a piece of waterproof paper, and a triangular bandage. That is the only protection until the dressing station is reached. There, a supply of almost every kind of antiseptic dressing—carbolic acid, corrosive sublimate, iodoform, boric acid, oakum, etc., was available. A solution of corrosive sublimate, 1:1000, was generally used for washing and irrigating wounds, which were often also dusted with boric acid or iodoform. They were dressed with a pad of corrosive sublimate wool, or with Dr. Kikuchi's straw ash pad. The latter was very extensively used, as being much more economical than the former, and could be made anywhere. It consisted of the ashes of burnt straw freed from all grit, and put into bags of antiseptic gauze, which were kept ready made in all sizes. It was applied directly to the wound and a bandage put over it. If there was little or no discharge from the wound, the pad was applied dry, but, if discharging freely, the pad was first soaked with corrosive sublimate solution. When these pads were not used, which was very rarely, especially in the First Division field hospitals, the dressing consisted of corrosive sublimate wool, a piece of protective, some common wool, and a bandage. Drainage tubes were always used where necessary, and when the dressings were changed the wounds were always thoroughly well irrigated. Loose pieces of bone in a gunshot wound were never removed forcibly, but were left to come away in the discharge or irrigations. Although there was very often considerable overcrowding in some of the buildings used for hospital purposes, the rooms being small, the results of the above form of treatment were uniformly good."

On the whole, with the exception of sanitation, the Director-General of the Medical Service of the British Army forms a very favorable opinion of the medical arrangements of the Japanese army. They were well devised and worked excellently in practice. Their surgery and medicine were quite up to the standard of modern science; and in the matter of sanitation they showed themselves ready to learn by experience.

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February 15, 1904.

SPECIAL ARTICLE.

EXCURSIONS IN OLD NEW YORK MEDICINE.—IV.

THE ELGIN BOTANICAL GARDEN.

The recent announcement that the Board of Trustees of Columbia University propose to sell the block between Forty-seventh and Forty-eighth streets and Fifth and Sixth avenues has recalled public attention to a very important old-time medical landmark in the city's growth. There are three other blocks in this neighborhood also owned by Columbia College, and these combined properties once formed the Elgin Botanical Garden which in 1801 was bought by Dr. Hosack and called the Elgin Botanical Garden, after the place of the birth of his father, Alexander Hosack, who was a native of the town of Elgin, Murrayshire, Scotland. When Dr. Hosack bought the ground it was far outside of the city, but now, after the lapse of a century, has become one of the most valuable pieces of property on Manhattan Island.

Some of the recent estimates of its present value are of great interest in this matter. One broker, who was approached on the subject, considered that exclusive of the Fifth Avenue frontage, a conservative estimate of all the property would be about $2,000 a front foot. This would make a value on the side streets of nearly $3,000,000, while the Fifth Avenue block front would be worth at least $1,500,000, making a grand total value of $4,500,000. This is probably too conservative an estimate. The property passed out of the possession of Dr. Hosack in 1814, who sold it to the State of New York. During the course of the negotiations for its sale, an expert in property of the time, under date of January 30, 1810, said: "In reply to your note of the 26th instant, requesting my opinion of the value per acre of your ground or garden, were I in want of such a piece of ground I should think it a good purchase at $2,250, and not a bad one at $2,500. In a few years I have no doubt it will be worth much more."

It is very evident that the expert in property had no idea of how much more it would come some time to be worth. A number of letters show that New York land in this vicinity at that time was worth between $2,500 and $4,000 an acre. Accordingly the botanical garden was sold for $2,500 per acre, and the buildings thereon

for an additional $24,300. The whole sum received by Dr. Hosack amount to nearly $75,000.

A very curious bit of history is connected with the subsequent transfer of this plot of ground, that had formed the Elgin Botanical Garden, to Columbia College. Before the admission of Vermont as a State—this being the first one of the States admitted in addition to the thirteen original colonies, after the Revolution and organization of the Federal Government, New York claimed certain portions of land on the other side of Lake Champlain, which now constitute portions of Vermont. The territory had always been in dispute, but New York State, as if formally to assert her rights, had granted a township of land in this territory to Columbia College, which from being King's College, now came to be looked upon as a special protégé of the State. After the admission of Vermont as a State by the United States Government, the drawing of the boundary lines left this township on the Vermont side of the line and consequently nullified the advantage that Columbia was expected to derive from it. As compensation for this the botanical gardens were granted to the University. The whole story of the grant is to be found in a pamphlet known as a statement of facts relating to the establishment and progress of the Elgin Botanical Garden, and Subsequent Disposal of Same to the State of New York, by David Hosack, M.D., which was printed in New York by C. S. Van Winkle, of No. 56 Pine Street, in 1811. This pamphlet may be found in Volume VI of Bound Medical Pamphlets at the New York Academy of Medicine.

Dr. Hosack, in preparation for properly influencing the legislature to make this purchase, and giving them definite data as to the value of the institution and property, obtained the opinions of a number of learned scientific societies, especially of such medical societies as were then in existence. The act under which the purchase of the Botanical Garden was made by the State was entitled An Act for Promoting Medical Science in the State of New York. One of the most influential documents presented in favor of the act consisted of excerpts from the proceedings of the Medical Society of the County of Saratoga, of the Medical Society of the County of Ulster, of the Medical Society of the County of Dutchess, and of the Medical Society of the County of Niagara, which were, it is believed, the only county medical societies in existence at the time (this was 1809), though the State Medical Society had been established some three years before, mainly through the instrumentality of the members of the County Medical Society of Saratoga.

The resolution of the State Medical Society suggests an alternative method of obtaining funds in order to remunerate Dr. Hosack and preserve the Botanical Gardens for the benefit of the medical profession in case the legislature should refuse to pass the necessary enabling act. Their resolution, which runs as follows, shows that public lotteries had not as yet come into that State of objectionableness in which they now are: "Resolved, That the Medical Society of the State of New York do unite with the preceding public bodies (scientific societies of various kinds), in an application to the legislature to solicit them to purchase the Botanical Establishment of Dr. David Hosack, if consistent with the funds of the State; or otherwise to grant a lottery for his remuneration and the establishment be so managed under the direction of the legislature as may be most conducive to the diffusion of medical science throughout the State.

"Done by order of the Society at their meeting in Albany held the seventh day of February, 1810. Nicholas Romayne, M.D., President of the Medical Society of the State. John Stearns, Secretary."

This Dr. John Stearns, of course, would be the distinguished physician who was afterward the first president of the New York Academy of Medicine, and who was one of the chief organizers of the Medical Society of the State of New York. It is to him, as was noted in a previous number of Excursions in Old New York Medicine, that the medical profession owes the introduction to America of powdered ergot under the significant name of pulvis parturiens.

One of the arguments that influenced legislators most in the purchase of the Botanical Gardens was the fact that realizing the benefit to be derived from such an institution as Dr. Hosack had established, his being the first establishment of the kind ever attempted in the United States, at least three other States, Massachusetts, Maryland and South Carolina, had proceeded to the enaction of such measures as gave them the benefit of like institutions.

In closing this discussion of the sale of his botanical gardens, Dr. Hosack, after giving all the formal documents which passed between him and the legislature, as also the permits from the city for the closure of the streets that ran through this neighborhood, says:

"From the preceding documents, the reader will be enabled to form some opinion of the many difficulties I have had to encounter in the establishment of the botanic garden. It will also be perceived that as a useful and necessary institution, it has been sanctioned by the approbation, not only of the medical profession throughout the State, but by the learned of every profession, and by many others of our most respectable citizens; that in every instance, when introduced to the notice of the legislature, it has met with a favorable reception, and has always been considered as deserving of legislative provision; that during the discussion which took place, in the last and the preceding years, relative to the purchase of the establishment by the State, the most influential members, both of the senate and assembly, however divided in their political sentiments, united in giving it their decided and liberal support. It will also appear from an examination of the act which was passed, that the purchase of the garden was to be made upon a fair and equitable valuation; that such valuation has accordingly been made by five of our most respectable citizens, chosen by the commissioners of the land office—that the appraisers formed their opinion of the value of the property, not only from their own personal knowledge, but also from the estimates which they received from many other reputable and disinterested individuals; and that, after a due examination of the condition of the act, they considered the delay of payment as constituting a necessary part of the valuation—that they accordingly formed their estimate of the property, amounting, exclusive of the plants, to the sum of $103,137, which estimate was presented to the commissioners of the land office in June, 1810. It has also been stated, that at a meeting of the commissioners of the land office in September following, the appraisers were called upon to designate the value of the garden, exclusive of any allowance for the delay of payment; and that the appraisers, in reply, stated the value, exclusive of any allowance for the distant period of payment, in other words, the price if paid for in cash at the time of the purchase, at $74,288.75—that at a subsequent meeting of the commissioners of the land office, held in the month of October following, they made me an offer of the last-mentioned amount—that I acceded to the terms proposed, and immediately contracted with the corporation of the city for a release of the quit rent, and of the streets that had been reserved upon the property; and that, having thus obtained a perfect title, the contract with the State was thereupon completed."

Dr. Hosack then adds, with regard to the real value

of the property, data, which show that his sale to the State was really dictated by unselfish motives.

"I have already observed, that I was influenced, in my acceptance of the terms proposed, by two considerations: First, that the legislature, in their construction of the terms and spirit of the act that had been passed, would agree with the appraisers in the propriety of including the interest of the purchase money in their valuation, for the period of time to which the payment might be deferred; secondly, that I accepted the same as a duty to my friends, to whose kindness I had been indebted, and by whose aid I had been enabled to support the establishment. But when the legislature are informed, that independent of the time and attention which I have bestowed on that institution, for nearly ten years, exclusive of the enhanced value of the property since its first purchase, and the additional expenses I have since incurred in obtaining a release of the streets that had been reserved by the corporation, that my disbursements, with the addition of simple interest for five years, have exceeded the sum I am to receive, at the time provided by the act, upward of $28,000, I feel the fullest confidence that the same liberal views which induced the legislature to make so large and honorable an appropriation for the promotion of science, will also incline them to sanction the appraisement as at first presented to the land office. To their decision I respectfully submit."

Quite apart from any monetary considerations, it is with eminent propriety that the Assembly Hall of the New York Academy of Medicine is called after Dr. Hosack, who was beyond all doubt one of the most professionally faithful and distinguished medical men that the New York profession has ever had among its members. Now that current events and interest in this property have called popular attention to Dr. Hosack once more (his name and career have surely always been familiar to the members of the medical profession, who are interested in the history of medicine, as they should be), a short sketch of his life and times will be given in the near future, for he lived at a transition period when stirring events disturbed the monotony of existence, and once, at least, during the famous Doctors' Mob in New York Dr. Hosack was in danger of his life, simply because he was a medical student.

SOCIETY PROCEEDINGS.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, January 13, 1904.

The President, Samuel Wolfe, M.D., in the Chair.

Physicians' Relations.—This was the subject of the address of the retiring chairman, and was read by Dr. H. Brooker Mills, who, after remarking upon the value of the organization of branches of the County Society in this city, considered the subject of "Physicians' Relations," (1) to their patients; (2) to the fellow members of the profession, especially consultants; and (3) to themselves. In regard to the first question, he believed that many unnecessary complications could be avoided by properly "training" the patient. In regard to the second question he deprecated the practice of the division of the consultant's fee with the attending physician, and believed that the same should be regulated according to the patient's ability. In regard to the physician's duty to himself, he urged that the medical man take sufficient rest to enable him to perform services of the highest character.

Thorough Organization.—Dr. A. M. Eaton in discussing this paper urged the importance of thorough organization of the medical profession, believed that more attention should be given to the business side, and also felt that through organization, much of the imposition which is practised by the undeserving upon the hospital clinics could be avoided.

The Diagnosis and Treatment of Internal Hemorrhoids.—This was the title of a paper read by Dr. Herman A. Brav, in which he defined hemorrhoids as varicosities of the middle and superior hemorrhoidal veins sometimes associated with eversion of the rectal mucous membrane, and always accompanied by more or less pain and tenderness. He divided them into (1) capillary hemorrhoids; (2) arterial hemorrhoids, and (3) hemorrhoidal tumors, which may also be termed, respectively, the first, second and third stages. In view of the fact that these conditions are also accompanied by hemorrhage, pain, protrusion and discharge of mucus, internal hemorrhoids are frequently confounded with cancer of the rectum, polypus of the rectum and prolapse of the rectum. The conflict is particularly apt to occur in children, in whom polypus and prolapse are not uncommon, and internal hemorrhoids, while they do occur, are rare. Polypus and prolapse can be distinguished from hemorrhoids by a careful digital examination, which will reveal the presence of a pedicle to which the growth is attached, and malignant disease can be distinguished by the hard growths on the rectal wall. He reported the case of a woman, aged seventy years, which had been diagnosed as internal piles, the patient having suffered from rectal hemorrhages, and a constant desire to evacuate the bowels. Digital examination in the lateral and semiprone position revealed nothing, but digital examination in the erect position with the patient straining down showed a malignant stricture about four inches above the anus. He also referred to the case of a boy in which a polypus had been diagnosed as internal hemorrhoids. The first stage of the hemorrhoidal development is the most difficult of diagnosis, and in many cases aid will be secured in this direction by making the examination immediately after the bowels have been emptied by means of an enema and having the patient strain down.

In regard to the treatment, he remarked that this should be considered with reference to the cause of the condition, which may be either constipation, retroversion of the uterus, foreign body in the rectum, pregnancy, straining during micturition, as from stricture or enlarged prostate. He divided it into two heads, the palliative treatment and radical cure by means of operation. He did not believe that palliative treatment was effective in the third stage, but felt that it was successful in the first and second, and recommended that in all cases the cause of the condition be ascertained and removed, if possible. Constipation should be avoided, the diet regulated, and alcohol and tobacco used only in moderation, if permitted at all. Mild aperients, massage of the sphincter, and the injection of two ounces of olive oil at bedtime, are beneficial in regulating the bowels. Hemorrhage is most efficiently relieved by the application of cold astringents. After each defecation cold water should be injected and the addition of 10 grains of tannic acid is very efficient. As a means of palliative treatment he uses an injection of five to ten drops of a solution composed of one part of pure carbolic acid; two parts of glycerin and two parts of water. He frequently injects two or three tumors at a time, but did not recommend that more than one be injected by the novice, and the sittings should be a week apart. Following this treatment, the tumor gradually lessens in size, and in a few weeks the pain and discomfort will disappear. In the cases of strangulated piles, immediate operation should be

performed, but if the patient will not permit this, applications of lead water and laudanum lotions afford great relief, and reduce the edematous swelling, so that the piles may be replaced. He described fully the operation he performs. After tying the piles with a ligature, he does not cut them off, but inserts a rubber tube in the rectum and keeps the bowels confined for about four days, after which action is secured by means of purgatives or enema, if necessary. Next to the ligature operation, he believes the clamp and cautery operation, as performed by Henry Smith, to be the best. The patient should be kept under observation for at least three weeks after the operation, being allowed about the room after the first week or ten days, but should be in a recumbent position most of the time for the balance of the period.

Dr. Collier Ford Martin, in opening the discussion on this paper, referred to the treatment of hemorrhoids, which is of value in some cases, *i.e.*, stretching the sphincter. He felt that it was very difficult to diagnose hemorrhoids by digital examination, and alone, and stated that the method he had found most effective was the employment of a small conical or tubular speculum. In regard to the treatment by injection, he was not inclined to view this as a palliative measure, but believed that in cases adapted to its use, practically all should be cured. In fibroid piles, however, the operative treatment is very much better. In regard to the sloughing following injection, he did not believe that this was a consequence of this method of treatment, but was due to the fact that proper aseptic precautions were not employed, or too strong a solution used, or too much fluid, and it is also well in all cases in which there is the least tightness or irritability of the sphincter to divulge the same under nitrou oxide prior to the injection. The injections should be made through a tubular speculum, one at a time, and the sittings should be a week apart. He believed in the weaker solution, and he is at present using the French phenol-sodique. The piles usually disappear in about two or three weeks after the operation. He had had no experience with the ligature method.

Electro-thermo Cautery.—Dr. Frank C. Hammond referred to the electro-thermo cautery used by Dr. Andrew J. Downes, and stated that he had seen some eight or ten cases of hemorrhoids operated on with this instrument that complained of absolutely no pain. He also stated that he had seen one case operated on which was burned considerably; this, however, was done by an inexperienced operator, to which he attributed the burning rather than to any fault of the instrument.

Dr. Bray, in closing, stated that he did not believe a speculum was necessary to diagnose internal hemorroids, but that they could be better noted by a digital examination with the trained finger. In regard to the injection method, as compared with operative procedure, he believed that in order to secure a radical cure, it was necessary to inject fifty or sixty drops of carbolic acid, as the injection of a smaller amount, while it will relieve the patient, will still leave a small hardened tumor, but which will give rise to no discomfort under proper dietetic and prophylactic measures. For the radical removal of the piles he believed the ligature method was the best, and that following it came the clamp and cautery, the difficulty of the latter method being that you are apt to include healthy mucous membrane, and if too much is removed, it may lead to stricture. He stated that he had not employed the electro-thermo cautery.

Appointment of Dr. Gorgas.—It is reported that Dr. Gorgas has been appointed sanitary medical expert for the Panama Canal Commission.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

Section in Clinical Medicine and Surgery.

Stated Meeting, held January 15, 1904.

Laparotomy for Gun-shot Wound.—Dr. Robert Johnson reported this case, the last of a series of five operated on during the year, without a death. Patient was a colored boy who had been shot in the abdomen and when seen one hour later was in great shock; no pulse being palpable at the wrist. Just before the accident he had eaten ice cream and cake. The wound of a 32-caliber bullet was found in Poupart's ligament and led into the abdominal cavity. Laparotomy was done through a median incision; thirteen perforations in the small intestines and eleven in the mesentery were found. All were sutured. Blood and feces were dipped out of the abdominal cavity, which was then flushed with salt solution, a large quantity of which was left in. The wound was drained with iodoform gauze. The patient made an uneventful recovery, and was well in three weeks. In a discussion as to the value of salt solution in abdominal work Dr. Baer said that he had found it useful in operating on ruptured appendix. Dr. Gardiner stated that he always washed out the abdominal cavity as a routine measure, if there was any soiling of the peritoneum. He had also found it of use in extra-uterine cases. Dr. Harrison said that good results had been obtained both by flushing and by only wiping the peritoneum, and that there were as many opinions on the subject as there were operators. Dr. Roland emphasized the value of salt solution in obstetrical practice, and particularly the use of large quantities in eclampsia.

Stated Meeting, held February 6, 1904.

Amebic Abscess of the Liver.—Dr. Beck showed two patients with this affection who had been admitted to the City Hospital within a week. Thirty-four cases of this condition have occurred at the City Hospital and four have recovered, two without and two with amebæ in the stools. The first patient was a man of thirty-two years, whose first attack of dysentery began in 1900. He gave a history of having drunk well water. The symptoms were frequent stools, chills, night-sweats, abdominal pains, loss of weight, edema of the feet and legs and blood in the stools. The amebæ were found and patient was started on quinite sulphate. Abscess formed and an operation was done on June 20, the liver being aspirated and then the abscess opened and drained. Two connecting cavities were found. Recovery was uneventful. Six months after operation no amebæ could be found and two and a half years have since elapsed with no return of symptoms. The second patient contracted dysentery at Fortress Monroe in 1888 and was discharged in 1890 from the army with incurable diarrhea. In 1894, however, his health was good, but in 1901 he began to have pain in liver, nausea and vomiting, great depression with some enlargement and tenderness of the liver, but no leucocytosis. He was operated in June, and at the end of July discharged cured. About four months later there was recurrence of all the symptoms, and in December a second operation was done. This was followed by improvement, but in June amebic dysentery reappeared which responded to treatment, only to recur again.

Dr. Gamble said that the interesting point about the first case was that amebæ left the stools after the operation. Irrigations in amebic dysentery increase the danger of perforation, for death does oc-

cur in the acute stage in spite of what the pathologists say to the contrary. To avoid this danger I have been giving quinine internally in pills whose coating is undissolved until it reaches the intestines. The patients are thus cinchonized just as malarial patients are, and the good result may be due to the toxic action of quinine on the amebæ, which belong to the same family as the malarial parasite.

Dr. Earle said that he always treated his cases with irrigations of silver nitrate and quinine, and Dr. Kirby reported having seen irrigating fluid in the abdominal cavity of amebic cases post mortem. Dr. Earle stated that a rectal tube of the sort most frequently used cannot as a matter of fact be inserted and that it really catches on the rectal folds. He always gives irrigations in the knee-chest or the Sims position, and finds no difficulty in making the irrigation run in.

Chronic Interstitial Nephritis in the Young.—A paper was read on this subject. This condition is usually seen in connection with arteriosclerosis and hence we expect it only in the later years when the causes of arteriorsclerosis have had a chance to do their work. Osler, Senator, Flint and others say that it is quite rare in children, and we would naturally expect this, inasmuch as lead poisoning, syphilis, diabetes, overeating, etc., play no important part in early years. In adults, males are affected with this form of nephritis more often than females, but in infants the case is reversed. Dickinson reported 300 cases, only one of which was under eleven years, and recently a case under fourteen years has been reported. Heubner thinks that the condition is rarely primary and always follows an acute gastritis, pneumonia or some such disease. Heredity and congenital lues may play a part, for there have been many cases showing a familiar character. Two cases were reported, the first of which was fourteen years old, and complained of bleeding from the gums. The child had poor appetite, headaches and frequent micturition, and was weak and restless. Urine contained a trace of albumin and a few casts. Death occurred three weeks after onset, and the autopsy showed an atheromatous aorta with contracted granular kidneys. The second case was eighteen years of age, and complained of frequent micturition. Her urine contained albumin, hyaline casts and a few pus cells. There was some anasarca. Autopsy showed an enlarged heart, a very small aorta and extremely contracted kidneys, the right one weighing but 18 and the left 22 grams. This relation between contracted aorta and granular kidneys has been noticed quite frequently in the literature.

THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

Stated Meeting, held at the New York Academy of Medicine, February 8, 1904.

Address by the Retiring President, Dr. Andrew H. Smith.—Dr. Andrew H. Smith delivered his farewell address. In it he stated that in the brief period since its organization the Association had attained a position such as is generally reached by similar bodies only after many years of laborious effort; indeed, it seemed almost to have sprung fully developed into existence. While he had endeavored to faithfully administer the trust placed in his hands, he recognized that the marked success of the Society had been due chiefly to its Executive Council, which gave shape and direction to the energies of the body at large, and particularly to the indefatigable efforts of the Secretary.

A Medical Man at the Head of the Health Department.—In closing, Dr. Smith called attention to a subject of congratulation. "For the first time since its organization," he said, "the Health Department has a medical man at its head. The insanity of our law-makers, that in express terms forbade that this should ever be the case, experienced a lucid interval at the moment when the new Charter was under revision, and now at last it is recognized that knowledge of the laws of health does not unfit a man to be President of the Health Board. . . . I am sure that I express the sentiment of the Association in felicitating the city on the one hand, and on the other, Dr. Darlington (who is a Charter Member of the Association), an esteemed member of our own profession."

Discussion on Pancreatic Diseases.—Dr. Thomas E. Satterthwaite, the President-elect, delivered his inaugural address. After a reference to the flourishing condition of the Association, it was devoted to the Pancreas and its Diseases, his remarks being designed as an introduction to a general discussion on this subject. Fifteen years ago, he said, we knew comparatively little that was definite about the pancreas. Since that time we have learned much, not only of its anatomy and physiology, but also of its diseases and their treatment. Much, however, is still unknown, and it is to be hoped that the discussion of this evening will set the whole matter in a clearer light. Dr. Satterthwaite gave a résumé of the work that has been done in reference to the pancreas. In the course of it, he said that the connection between pancreatic hemorrhage and acute pancreatitis appears to have been first noted by Rokitansky, though this relation is still somewhat obscure. The two may coexist or not. In 1885 Dr. Satterthwaite presented a case at a meeting of the New York Pathological Society, where there had been a hematoma of the pancreas, without inflammation of the gland, due, as he thought then, and still thinks, to biliary salts in the blood. On the other hand, Halstead, of Baltimore, has instanced a case where there was pancreatic inflammation in association with cholelithiasis, in which a small stone had lodged in the diverticulum of Vater and diverted the bile into the pancreatic duct, causing pancreatic suppuration and hemorrhage. In 1869 an interesting anatomical discovery was made that was destined to greatly enlarge our views as to the physiology of the pancreas. Paul Langerhans, of Berlin, in his inaugural dissertation, was the first to describe certain groups of cells in the pancreas which differed from the ordinary cells of the gland, but whose nature and functions he did not determine. These cell groups or isles are now known as the Islands of Langerhans. It remained for Opie, of Baltimore (1903), to show that if the islands of Langerhans are intact, no sugar appears in the urine. In this connection, however, the English surgeons Mayo, Robson and Moynihan, hold that while extirpation of the whole pancreas produces diabetes in a large number of instances, there may be diabetes without apparent pancreatic disease, and, on the other hand, chronic interstitial pancreatitis without diabetes. Furthermore, the experiments of Ssobelou (1902) are interesting. He destroyed the gland *in situ* (as he thought) in animals, by Claude Bernard's method, but glycosuria did not occur. The query then was, Did he actually destroy the gland in its entirety? If so, some other gland must be competent to act vicariously for the pancreas. Having paid some attention to the subject of fat necrosis, he went on to say that it was difficult to do justice to all the men, indeed, all the Americans, who have aided in the advancement of our knowledge of pancreatic diseases and their treatment. In 1886 Senn, of Chicago, gave a masterly review of the surgery of the pancreas, and laid down rules for operative procedures which

have had wide recognition. In 1889 Lund, of Boston, demonstrated the possibilities of surgery in acute pancreatitis by a successful operation (said to be the fifth successful one), in a case of pancreatic abscess and fat necrosis. In the same year Fitz, of Boston, in his Middleton Goldsmith lecture, delivered in this Academy building a classical paper on pancreatic hemorrhage, and the various forms of acute pancreatitis that brought the subject of pancreatic diseases prominently before the medical profession everywhere. As yet, it is a matter of regret that medical treatment, other than palliative, offers so little hope. Fortunately, however, there is ground for belief that even in the acute form spontaneous cures may take place. Chronic pancreatitis is more amenable to treatment, because the signs are more distinct and there is more time to study them. After the acute symptoms have been relieved by the medical attendant, and surgical intervention has been decided upon, the prognosis for an operation is fairly good. So far as the diagnosis of pancreatic disease is concerned, it is well known that there are many difficulties and many failures, especially in the acute form. It is difficult certainly to contra-distinguish pancreatic disease from peritonitis, interstitial obstruction, cholelithiasis, gastric or gastro-intestinal tumors or ulcers. Still there is no doubt that we are making progress every year.

Advances in the Physiology of the Pancreas and their Application to the Diagnosis of the Diseases of the Pancreas.—Dr. John C. Hemmeter, of the University of Maryland, spoke on this subject. Exact physiological knowledge concerning the functions of the pancreas, he said, dates from the discovery by Claude Bernard, in 1848, that the secretion of this organ is capable of digesting fats. In 1857 Corvisart ascertained that it has the power of digesting proteid material. Having referred in passing to the work of other investigators, he spoke particularly of the epoch-making discoveries of von Mering and Minkowski, who, in 1889, demonstrated that diabetes can be experimentally produced in the dog by extirpating the pancreas, and that the appearance of sugar in the animal's urine is accompanied by all the characteristics of glycosuria, as it occurs in the human being. On the basis of numerous investigations into the pathological histology of the pancreas in cases of diabetes it was established that many cases of this type of disease are due to atrophy, fatty degeneration, and tumors of the pancreas. Degenerations of the islands of Langerhans have been particularly associated with diabetes, but the fact must be emphasized that in some instances of very severe diabetes no changes whatever were demonstrable in the pancreas. Pearce has recently furnished confirmatory evidence from the human embryo that the islands of Langerhans, though originating through a proliferation and differentiation of the cells of the primitive secreting tubules of the pancreas, eventually become wholly independent structures anatomically. On the basis of physiology, histology, pathology and embryology, therefore, the pancreas, as it now appears, represents an organ within an organ—a duplex structure with, first, a function to the interior, and, second, to the exterior, the intestinal canal being practically outside the body proper. The islands of Langerhans, which are not concerned in the elaboration of the pancreatic ferment, are identified with the first, and have been shown to exert an influence upon the carbohydrate metabolism, probably by an internal secretion. The glandular parenchyma, on the other hand, is concerned with an external secretion, the digestive pancreatic juice. It is undoubtedly a fact that none of its functions belongs exclusively to the pancreas, so that all of them are capable of being performed vicariously by other organs (the stomach and intestine). Pearce has laid emphasis on the fact that the cells of the islands of Langerhans give evidence of a remarkable resistance to degenerative processes. This makes it conceivable that we may eventually succeed in destroying the digestive or ferment-producing cells in a living animal and leaving the islands of Langerhans intact. It has occurred to Dr. Hemmeter that possibly this might be produced by the pancreatic juice itself, or by inducing an autolysis of the digestive cells of the pancreas through the influence of its own digestive ferment. In an autopsy on a case of diabetes which had recovered from the symptoms of glycosuria, but had eventually succumbed to consequences of cholelithiasis, he observed a partial autolysis of the glandular apparatus of the pancreas, whereas the islands of Langerhans did not appear to be diseased. At present the diagnosis of pancreatic diseases must depend more upon the clinical data than upon the results of chemical researches in the laboratory. There are three requisites which conservative clinicians should demand of all published assertions concerning the clinical pathology of the pancreas: (1) A concrete and precise account of the objective and subjective signs and symptoms. (2) Quantitative and qualitative chemical analyses of feces, blood and urine after the ingestion of weighed amounts of proteids, carbohydrates and fats, preferably each given alone. (3) Accurate description of the findings that are discoverable either at operation or at autopsy. In conclusion, Dr. Hemmeter stated that his principal aims on this occasion were (*a*) to point out the possibility of separating the islands of Langerhans (concerned in control of carbohydrate metabolism) from the part of the pancreas concerned in the secretion of the digestive juice, and (*b*) to demonstrate that active proteolysis may take place in the intestinal canal in the entire absence of pancreatic secretion.

Experimental Researches.—Dr. Richard M. Pearce, of the Albany Medical College, said that the pancreas lends itself to experiment perhaps more readily than any other organ of the body. Among the researches undertaken have been many to determine the injury caused to it by various irritating substances. These give rise to inflammation characterized by necrosis and to hemorrhagic pancreatitis. It is possible on the present occasion to consider the effects of but four of these irritants. (1) The action of a ferment. It is a question whether it is possible to produce pancreatic hemorrhage (apoplexy) without inflammation. Probably hemorrhagic pancreatitis always results. As to the order of the phenomena, hemorrhage, necrosis and inflammation, Dr. Flexner and himself had endeavored to ascertain which of these occurred first. In their experiments all three were found at the end of one hour, and the conclusion was reached that they occur almost simultaneously. A large number of the cases of pancreatitis are associated with gangrene, but this usually occurs only as a secondary phenomenon at a late stage of the inflammation. Suppuration occupies a position by itself. While hemorrhagic pancreatitis is diffuse, suppuration is distinctly localized (in abscesses). In the hemorrhagic and gangrenous pancreatitis there occurs a form of inflammation different from that met with in other organs, but suppuration in the pancreas is the same as observed elsewhere. Fat necrosis is a common complication of pancreatitis. (2) Action of bacteria. This is apparently secondary. (3) Action of gastric juice. In the experiments artificial gastric juice was employed. In man there is no evidence that irritation by the gastric juice can take

place. (4) The relation of bile to acute pancreatitis. Proof has been furnished that bile entering the pancreatic duct may give rise to hemorrhagic pancreatitis. In the experiments conducted by Dr. Flexner and himself, however, only a very small proportion of cases of cholelithiasis were complicated by pancreatitis. The old classification of pancreatitis by Fitz into hemorrhagic, gangrenous and suppurative, seems to answer all purposes. As all these varieties are accompanied by more or less necrosis, it is hardly necessary to add a fourth variety.

Pathology.—Dr. George P. Müller, of the University of Pennsylvania, described the lesions observed in the acute and chronic forms of pancreatitis and the relation which such lesions bear to the question of diagnosis. Acute pancreatitis, he said, with its fearful rapidity of progress and great mortality, presents but few lesions. They are essentially those of a peritonitis in the upper abdomen, with varying lesions in the gland itself, and often diffused fat necrosis, which may extend to the epiploic appendages of the sigmoid or to the meso-appendix on the right. Destruction of the parenchyma of the pancreas ensues, and one of two types of disease presents itself. Acute hemorrhagic pancreatitis is an affection peculiar to the pancreas and undoubtedly due to the complexity of the ferments and of the internal secretion. The impaction of a gall-stone more nearly explains the sudden onset than any other. The pancreatic secretion, acting upon cells injured by retained ferments, infection, etc., causes areas of necrosis and hemorrhage which may eventually involve the entire gland. An inflammatory reaction, marked by the presence of large numbers of polynuclear leucocytes, is present from the beginning. In microscopical sections of the pancreas the interacinous, interlobular and peripancreatic tissue is seen infiltrated with blood, and the intact blood-vessels distended, with walls swollen and cloudy. The acini, if identified, are barely discernable, their nuclei are lost, and the cells are granular and cloudy in appearance. In various areas the destruction of the gland becomes total, and nothing can be discerned, except a structureless granular débris. In gangrenous pancreatitis, the termination of the acute lesion, the organ is large, friable and slate-brown or purple in color, and upon section presents a mottled red and black appearance, with no visible evidence of any structure, except perhaps the duct of Wirsung. In suppurative pancreatitis, which is due to infection by bacteria, the pus is observed as multiple small abscesses or metastatic deposits, distinguishing this form from the hemorrhagic disease with infiltration and diffusion of the leucocytes into the already formed necrotic tissue. The abscess, if large, may open into the peritoneal cavity—more rarely externally; and, if primary in the pancreas, may infect the portal vein and liver. Fat necrosis is an interesting chemical reaction by which the pancreatic ferment, by virtue of its fat-splitting element, infiltrates the fat in the peritoneal cavity, and induces specks of necrosis followed by the production of the crystalline calcium salts. At the present time the appearance of these scattered white points in the mesentery and omentum, when the abdomen is opened at operation, must be considered as indicating a grave lesion in the pancreas and a probable fatal termination. The peritoneum is variously affected by acute pancreatitis, and sometimes there is present a true and often diffuse peritonitis, especially when the pus in the suppurative form has broken into the peritoneal cavity. Chronic pancreatitis is of immense importance at the present time by reason of the brilliant prospect which surgery offers in the cure of a disease long believed to be incurable, and frequently confused, in diagnosis, with malignant disease. The pancreas parallels the liver in a fairly close manner when attacked by chronic indurative inflammation, though the lesions observed have a more direct bearing upon the clinical findings. Having spoken of the etiology and microscopical appearances, Dr. Müller described a case in which pancreatic calculi completely obstructed the duct of Wirsung and the gland was in a state of complete atrophy. Pancreatic calculi, he said, have rarely been diagnosed during life, and only once has such diagnosis been followed by operation. As a result of the obstruction of the pancreatic ducts by the calculi, the parenchyma suffers, an interlobular pancreatitis occurs, and atrophy of the gland is the result.

Classification and Symptomatology.—Dr. Charles G. Stockton, of the University of Buffalo, said that the classification of diseases of the pancreas was especially difficult, partly because of the incompleteness of our knowledge of the pathology and partly because the pancreas secretes certain enzymes or other active principles which, in the presence of disease, lead to peculiar and remarkable changes, both in function and structure. Tumors of the pancreas occur, as carcinoma of various kinds, adenomata, tuberculosis, syphilis, and cysts, the last presenting at least three varieties: retention cysts, proliferation cysts, and hemorrhagic cysts. Chronic pancreatitis is usually described as induration, although fatty degeneration and fatty ingrowth often form a considerable part of the mass. We have come to accept two forms of distribution of the fibroid degeneration, one the ordinary interlobular type, the other characterized by diffuse proliferation of the interasinar tissues, which invades the islands of Langerhans and apparently constitutes the structural change upon which pancreatic diabetes depends. When the induration involves the head of the pancreas it may, from pressure, obstruct the common bile duct and give rise to phenomena, which suggest malignant growth or cholelithiasis. If the choledochus escapes, there may still ensue symptoms of more or less importance, depending upon interruption of the pancreatic function. These are glycosuria (persistent if the disease invades the islands of Langerhans), the signs of interstitial indigestion, and, occasionally, fatty stools, lipuria, sialorrhea, emaciation, and, it may be, severe anemia. Given a palpable induration in the region of the pancreas and disturbance of intestinal digestion, with, at times, traces of sugar and albumin in the urine, with or without increased salivation, fatty stools, or lipuria, and depreciation in general health, without the cachexia of cancer, then one may make a provisional diagnosis of chronic indurative pancreatitis. Having referred to the classification of inflammatory diseases of the pancreas given by various authors, he said it did not seem to be satisfactory to attempt the explanation of acute pancreatic processes along the line of ordinary inflammation. In some instances an inflammatory reaction is evident; in others it is entirely lacking. What is present in all cases is the escape of pancreatic secretion into the tissue and the consequent necrosis of the pancreas and surrounding parts, accompanied by hemorrhage, liquefaction necrosis, and fat necrosis. While it is admitted that these phenomena may be excited by an inflammation of the organ, the fact must not be lost sight of that there are cases free from infection, and therefore inflammation, as that term is used at the present day. In the so-called hemorrhagic pancreatitis no pus whatever is found, but suppurative pancreatitis, due to infection, follows a different course. The symptomatology of acute hemorrhagic pancreatitis and that of hemorrhage into the pancreas are very closely related. In the onset there are intense pain in the lower part of

the epigastrium, manifestations of shock, and generally nausea and vomiting. These symptoms may continue for a few hours or days, and then subside. Not infrequently the pain diminishes, but the prostration continues, vomiting recurs, and the temperature is raised from one to three degrees. The abdomen is slightly distended, and there is increased resistance in its upper half, where there is also more or less marked tenderness. The bowels are usually somewhat sluggish, but lack the motor paresis of peritonitis. The symptoms are increased by movements of the body, and yet there is not the disinclination to change position observed in cases of peritonitis. In a few instances slight transient glycosuria appears, and traces of albumin in the urine are to be expected. Patients may continue in this condition for several days, or even weeks, and spontaneous recovery may possibly occur. More often the process continues for a few days without marked change, when somewhat suddenly the prostration increases, the pulse becomes almost imperceptible, and death results apparently from abdominal shock. When suppuration is associated with hemorrhagic pancreatitis, we find added to the symptoms of the latter those of septicemia. In other cases of suppurative pancreatitis the manifestations are often merely those of suppuration in the upper part of the abdomen, and the element of shock may be less marked than in the hemorrhagic form of the disease. Leucocytosis is to be expected in suppurative cases, but is inconspicuous or absent in those of other types. Fat necrosis occurs in most, but not all, acute processes of the pancreas, whether suppurative, necrotic or inflammatory.

Prophylaxis and Medical Treatment.—Dr. Glentworth R. Butler read a paper on this branch ot the subject. This paper will appear in full in a subsequent issue of the Medical News.

Surgical Treatment of Pancreatitis.—Dr. John B. Deaver, of Philadelphia, said that the indications for operation in acute pancreatitis are furnished by the pathology of the disease and the history of the cases so far reported. The extraordinary rapidity with which death so often follows, shortly after the onset, makes any delay inadvisable; and yet, the diagnosis is so difficult and the symptoms are so ill-defined that the mortality following operation is very high. In many forms of acute pancreatitis the disease appears to be a destructive infiltration of tissues by ferment, often associated with infection, and only in those cases where local areas of pus produce necrotic foci does it limit itself. For this reason he believed that the early operation, rationally conducted, as Mikulicz expresses it, will finally give us the better results. The technic of such an operation varies with the condition present. Upon opening the abdomen, fat necrosis, if present, is a symptom of great moment, and, of course, decides the diagnosis. The gall-bladder should be palpated for calculi, and the common duct explored with the finger. The intestines and surrounding viscera must be protected by gauze pads with great care. The pancreas may be reached (1) through the gastrocolic omentum, below the stomach; (2) through the gastrohepatic omentum, above the stomach, or (3) through the transverse mesocolon, back of the colon and stomach. The first method is the most applicable for the purpose of drainage. Having cited certain points formulated by Mikulicz, he said that the bleeding in hemorrhagic pancreatitis was often hard to check, and might require the extensive use of gauze tampons or even the introduction of sutures. The latter was to be avoided, if possible. Progressive necrosis of the pancreatic cells from the action of the ferment, while not to be checked by operation, may be prevented to a great extent by free drainage. Infections from the duodenum involving the pancreas require the usual treatment for infected areas elsewhere, free incision and drainage. If the pancreas merely presents a swollen, tense, edematous appearance, and there is no marked peripancreatic involvement, an incision should be made in the long axis of the organ, extending its entire length, if necessary. Drainage to this opening, though uphill, will sufficiently provide for the serous effusion and broken-down products. When the peripancreatic involvement is severe, loin drainage is required, after free incision of the pancreas. Abscess, necrosis, and gangrene of the organ require identical treatment. Before completing the toilet of the abdomen the area of disease should be carefully walled off from the general peritoneal cavity by gauze. In cases in which the presence of stones in the gall-bladder or bile ducts is discovered the operation is considerably complicated, as the incision is too far to the left for the best performance of cholecystostomy. The surgery of chronic pancreatitis has been made in recent years. After alluding to the work of Senn, published in 1886, Dr. Deaver said it was principally to Mayo Robson that we owe the impetus given to the surgical treatment of chronic inflammatory enlargements of the head of the pancreas. He then gave a résumé of the essential lesions of chronic disease from the standpoint of surgery, and went on to say that the cause of the disease must be removed, if a biliary or pancreatic stone, and temporary or permanent drainage of the bile provided for. Most surgeons prefer the external opening, or cholecystostomy, and the great advantage of the latter method is the ability to keep the drainage under constant observation. When the stone is located as being in the ampulla of Vater, it is best to open the duodenum and slit up the papillæ, such a procedure not requiring any suture to reclose the duct. A choledochotomy is required if the calculus is in some other position. Pancreatitis without stone is frequently completely relieved by a simple cholecystostomy. When there is glycosuria without obstruction of the biliary apparatus, great relief may be afforded by a cholecystostomy, but theoretically an operation offers no hope for cure, as the diseased islands of Langerhans are not dependent on any lesion ascending through the ducts. In cases with obstruction of the pancreatic duct by a calculus the operation required depends upon the location of the latter, and while it may be reached by opening the papillæ and duct through the duodenum, the operator must be prepared to open the lesser peritoneal cavity and cut down through the gland itself. The operative procedure in pancreatic cysts will depend upon the degree of adhesion to surrounding structures. In only a small proportion of cases can the cyst be dissected out. Aspiration of the cyst should be performed only when the patient is severely ill from diabetes or the effects of pressure. Whenever practicable, the abdomen should be opened by a median incision above the umbilicus, and through either the gastrocolic omentum or the transverse mesocolon; after which the contents of the cyst should be withdrawn by an aspirator, the puncture being closed with one or more hemostats, as the needle is removed. The cyst wall is then drawn to the wound, sutured to the parietal peritoneum, and drained. When the cyst is small and cannot be brought to the abdominal wound, a rubber drainage-tube should be introduced into the cyst cavity, surrounded by gauze packing to prevent leakage.

Dr. Howard C. Russell, of the United States Marine Hospital Service died Wednesday at the Marine Hospital, at Stapleton, S. I., from pneumonia. He was born at Washington, D. C., and was educated and obtained his medical degree at the University of Pennsylvania. He was appointed to the Marine Hospital Service on July 1, 1897.

BOOK REVIEWS.

The Prevention of Consumption. By Alfred Hillier, M.D., C.M., B.A., Secretary to the National Association for the Prevention of Consumption (London), etc. Revised by Professor R. Koch. Longmans, Green & Co., London, New York and Bombay.

In his introduction to Dr. Hillier's book Professor Koch says: "In all respects it represents the latest scientific views, which are so clearly expounded that every intelligent reader can derive reliable instruction from them. A special merit of the author is that in dealing with points still matters of controversy in the science of tuberculosis he handles them with such skill that the true value of varying opinions is shown." This is high praise from the best authority. We think that readers of the book will find it not undeserved. Nowhere else can one find crowded into 200 small pages so much that is practical and thoroughly up to date with regard to tuberculosis. The compression necessary has been accomplished with special success, though we think that it might have been longer as regards certain details of prophylaxis, with addition to its value.

The Self-cure of Consumption Without Medicine. With a Chapter on the Prevention of Consumption and Other Diseases. By Charles H. Stanley Davis, M.D., Ph.D. Member of the Connecticut State Medical Society, etc. E. B. Treat & Co., New York.

We have one fault to find with this little book, valuable in other ways, and that is a fault common to a number of recent publications with regard to tuberculosis. It appears to make the cure of consumption almost too easy, and there is apt to be the feeling created among incipient consumptives that after all they are not suffering from a very serious condition. This may easily lead to neglect of the rather severe regimen that any consumptive must accustom himself to carry out if he is going to obtain a cure of his disease. Otherwise the book contains many valuable hints put in a very practical way.

The Pathogenic Microbes. By M. Le Dr. P. Jousset, Physician to the Hospital St. Jacques, Paris. Authorized translation by Horace P. Holmes, M.D. Boericke & Tafel, Philadelphia.

We scarcely see any reason why this little book should have been translated into English. We have a number of volumes by American authors that cover just the same ground and seem to be quite as well done. Dr. Jousset's book is a good little hand-book as compends go. It is scarcely more than this. We venture to say that there are at least half a dozen volumes almost as compendious and quite as valuable otherwise as this.

The Blues (Splanchnic Neurasthenia). Causes and Cure. By Albert Abrams, A.M., M.D. (Heidelberg). F.R.M.S. Consulting Physician Denver National Hospital for Consumptives, etc. E. B. Treat & Co., New York.

Dr. Abrams' little book of nearly 250 pages gives an excellent idea of some of the varying phases of the neurotic conditions popularly termed "the blues." In the summary of his first chapter he says that "an attack of the blues is an attack of acute neurasthenia or an aperiodic aggravation of chronic nervousness. Heredity may be responsible for the susceptible nervous system, and it devolves on the individual to obey the laws of hygiene and to avail himself of momentary advantages, however minute, to withstand the effects of conditions which either weaken or improve the status of his vitality."

There are a number of very practical points with regard to the varying phases of the disease, and the various chapters are summarized very interestingly. The book would well stand more condensation, but still is worth reading, especially for those who have much to do with the idle rich, with so much time on their hands that the blues become a frequent source of annoyance.

Manual of Medicine. By Thomas Kirkpatrick Monro, M.A., M.D. Fellow of and Examiner to the Faculty of Physicians and Surgeons, Glasgow, etc. W. B. Saunders & Co., Philadelphia and New York.

This work has at least the distinctive character sometimes missed in text-books on medicine of giving due credit to the men to whom the author is indebted for much help in the compilation of his book. As Americans we are pleased to find in conjunction in his expressions of indebtedness such names as Sir William Gowers, Sir William Broadbent, Dr. Sansom and our own Professor Osler. Altogether the book contains some 900 pages, and will undoubtedly be useful to students. The author hopes also that it will be of service to junior practitioners. Personally we should be very much better pleased if both students and junior practitioners of medicine early acquired the habit of consulting some more extensive standard work well known as an authority on various subjects, which would eventually become a companion with a definite place in local memory for problems previously solved by means of it. We think that this book is as good as any can be made with such condensation as is necessary under these circumstances, though we are inclined to deprecate the making of many manuals which must find a place somewhere between the compend intended merely to help the student's memory and the text-book, which should become a familiar and loving companion.

The Hospital Formulary of the Department of Public Charities and the Department of Bellevue and Allied Hospitals of the City of New York. Sixth Revised Edition. W. E. Dreyfus, A.B., Ph.D., Editor, New York.

This volume, very substantially bound in leather, constitutes an important addition to any physician's working library. As much as possible formulæ of a similar nature have been brought together, so as to avoid the necessity for frequent reference to the index. An addition special to this revision is an index of diseases for which the formulæ are usually employed. This will undoubtedly prove, as the chemist of the Department of Public Charities suggests, a valuable feature for younger physicians at least. The book is an excellent sample of the sort of work that has been done in the last few years in the Department of Public Charities, and the preface closes with the request for notifications as to alterations or additions desired in future additions, that shows a commendable willingness to make the formulary even more valuable, if possible, in the future.

International Clinics. A Quarterly of Illustrated Clinical Lectures and Especially Prepared Original Articles on Treatment, Medicine, Surgery, Neurology, etc. By Leading Members of the Medical Profession Throughout the World. Edited by A. O. J. Kelly, A.M., M.D., Philadelphia, U. S. A. With Regular Correspondents in Montreal, London, Paris, Berlin, Vienna, Leipsig, Brussels and Carlsbad. Volume 4, Thirteenth Series. J. B. Lippincott Company, Philadelphia.

The present volume of the International Clinics, which closes the first year under the new editorship, shows that the improvement manifested in the character of the contents of the Quarterly has been continued.

Perhaps there is to be noted, however, a tendency to overspecialization, which will deter the general practitioner readers of the periodical. There are excellent medical articles, however, on the Importance for Students of Physiognomical Diagnosis in Disease, by Sir Dyce Duckworth, of London; on Some Clinical Aspects of Diseases of the Kidneys, by Henry Baird Favill, of Chicago; and on The Parallelism Between the Clinical Symptoms and the Pathological Lesions of Rheumatic Fever, by F. J. Poynton, of London.

Very timely articles on treatment are those on the Treatment of Croupous Pneumonia, by John H. Musser, of Philadelphia, and the Treatment of Chronic Bronchitis, by Thomas A. Claytor, of Washington. Dr. Musser insists especially on the individualization of treatment, though he gives many precise practical directions and various drugs that may be employed with advantage in the treatment of this disease. For those who wish to realize the present state of medical knowledge regarding the subcutaneous use of mercury in the treatment of syphilis, Professor Julien, of Paris, has written an excellent review, historical and evolutionary, of this use of mercury. There is much more in it than is usually supposed by those who have been accustomed to prescribe mercury only by the mouth, and in the severer cases, especially this form of treatment, it would seem, must be ready at hand if the medical practitioner would do his whole duty by his patients.

Nineteenth Annual Report of the Bureau of Animal Industry, United States Department of Agriculture, for the year 1902. Government Printing Office, Washington.

This annual report always contains some material interesting to physicians and especially to bacteriologists. In the present volume there are articles on scabies in cattle, the duration of the life of the tubercle bacillus in cheese; statistics of oleomargarine, oleo oil and filled cheese; bovine tuberculosis and other animal diseases affecting the public health; foot and mouth disease, Voges' description of *mal de caderas*, a South African trypanosomatic disease of domestic animals; contagious diseases of animals in foreign countries, and a report on the tuberculin test of cattle in Great Britain. As these articles are written by such experts as D. E. Salmon, Charles Wardell Stiles, R. W. Hickman, there is no doubt that the details presented can be absolutely depended on and they may prove of value in the study of analogous diseases in human beings.

Compend of Pathology, General and Special, a Student's Manual in one volume. By Alfred Edward Thayer, M.D., Professor of Pathology, University of Texas. Second Edition. P. Blakiston's Son & Co., Philadelphia.

In his preface Dr. Thayer says that the two compends of pathology issued by him in 1902 are here presented in a second edition as one volume. A special chapter on the nervous system has been added and the text thoroughly revised. The book is meant for students and is certainly a handy volume, containing a great deal of valuable material in its seven hundred odd pages. It is, however, beyond the range of a compend and yet scarcely a textbook. It is not easy to understand the position that it will occupy in medical literature except as a book for students to have and consult for examination and recitation purposes, which in later editions will become a full-fledged text-book. It seems almost too bad that students should not become familiar during their college days with some classical complete text-book, rather than a makeshift meant only for the passing years of school life.

Mammalian Anatomy. With Special Reference to the Cat. By Alvin Davison, Ph.D., Ex-Fellow of Princeton University; Professor of Biology in Lafayette College. P. Blakiston's Son & Co., Philadelphia.

This little book is an excellent compendium of mammalian anatomy as it can best be studied outside of medical schools. The cat has frequently been used as a type of the mammal and this guide seems to be concise yet complete and very well illustrated. The compression has been especially well done, for in spite of brevity there is very little that is important in mammalian anatomy that is not to be found within its covers. The harmless, necessary cat makes an excellent substitute for the higher mammal and the opportunities afforded by its structure have been well taken advantage of.

Annual Report of the Health of the Imperial Navy for the Year, 1901. Tokyo.

If the present volume is an index of the administrative control existing throughout the Japanese navy there is no reason to believe that this department of the Mikado's fighting force is less intelligently or efficiently organized than that of any other world power. This report is a model of its kind and presents the health statistics of the imperial navy tabulated from every conceivable point of view. The mean daily force of the service for the year 1901 was 26,469 and the number of patients treated for the year was 24,870, which is in the ratio of 942.76 per 1,000 of force. As this figure shows a decrease of 36.63 per 1,000 over the preceding year the "chief of Bureau of Medical Affairs," Baron Saneyoshi, F.R.C.S., Eng., H.M., is no doubt pleased with the work of his staff.

The Treatment of Neurasthenia. By A. Proust, Professor in the Faculty of Medicine of the University of Paris, and Gilbert Ballet, Professor Agrege of the Faculty of Medicine of Paris. Translated by Peter Campbell Smith, Laureate of the Royal College of Physicians of Edinburgh. Edward R. Pelton, New York.

This little book is a very popular manual of the treatment of the hydra-headed symptom complex of neurasthenia, as formulated in France. It has been before the American medical public for some time and has deservedly gained a reputation for itself, for its thoroughly practical character. The chapter on the prophylaxis of neurasthenia is the best in the book. The chapter on moral education, particularly, will be helpful to those who want to prevent neurotic growing children from becoming adult neurasthenics. The concluding chapters on neurasthenia in women and genital neurasthenia are excellent compends of difficult subjects.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

A Handbook on the Prevention of Tuberculosis. Published by the Charity Organization Society of the City of New York. 8vo, 388 pages. Illustrated. New York.

Non-Surgical Treatise on Diseases of the Prostate Gland and Adnexa. By Dr. G. W. Overall. 8vo, 205 pages. Illustrated. Marsh & Grant Co., Chicago.

Annual Report of the Supervising Surgeon General of the Marine Hospital Service of the United States, for the Fiscal Year 1900-1901. Two volumes Government Printing Office, Washington, D. C.

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ORIGINAL ARTICLES.

A CLINICAL STUDY OF SIXTY-TWO CASES OF INTESTINAL INFECTION BY THE BACILLUS DYSENTERIÆ (SHIGA) IN INFANTS.*

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AND

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IT is necessary to emphasize at the outset that this study is entirely clinical. The *Bacillus dysenteriæ*, first proved to be the cause of Japanese dysentery by Shiga, and later to be responsible for the disease in Manila, the United States, Germany and other countries, is now universally regarded as one of the etiological factors in adult dysentery.

Duval and Bassett in 1902, working under Flexner's direction, isolated the bacillus of Shiga from the stools of infants suffering from summer diarrhea. Their results have been confirmed by many other investigators, and infection with the *Bacillus dysenteriæ* is now believed to be the rule in a large proportion of all forms of the diarrheas of infancy, both in the winter and in the summer.

It is not our intention to discuss the cause of diarrhea in infants, or the bacteriology or pathology of this condition. This clinical study was a part of the investigation carried on during the past summer by the Rockefeller Institute for Medical Research and was intended to deal with the symptoms observed in those patients in whose stools the *Bacillus dysenteriæ* was found.

The cases that make up the material for this study were all observed by the writers at the Vanderbilt Clinic during the months of July, August and September, 1903. The patients were brought to the dispensary, which is an outpatient service, and the milder cases were seen only every alternate day. The severe cases were, in addition, visited and treated at their homes on the days that they did not come to the clinic by Drs. Peter Irving and Frank Erdwurm, whose efficient cooperation made full reports possible. To insure uniform records use was made of printed blanks upon which could be recorded the history, physical examination and daily observation of each case. The form of blank chart used is shown on page 482.

When a child was brought with a history of diarrhea, effort was made at the time of the first visit to obtain a fresh stool for immediate bacteriological examination. By using the thermometer by rectum or inserting a suppository it was possible in most cases to obtain a stool. The stool was passed into a sterile piece of unbleached cotton, then taken at once to the bacteriologists, Drs. Duval and Schorer, working in the same building. In forty-eight hours a bacteriological report on the presence or absence of the dysentery bacillus could be obtained.

At first only those cases were examined bacteriologically that gave the history or presented symptoms of a moderately severe diarrhea; but later, on account of the numerous positive findings, all cases of mild diarrhea and intestinal indigestion were also examined. This makes our report of far greater interest, our cases being successive ones, no selection at all having been attempted after the first four cases; while other cases that have been published up to this time have been those selected for their severity, or for some reason regarded as suitable and likely to contain the bacillus of dysentery. One small series examined seriatim has been reported. Comment upon these cases will be made later.

Some patients were seen but once; in others, though seen several times, the result of the disease was unknown. Undoubtedly some of these cases recovered so that they were not brought back to the clinic; others refused to return after the first injection of the serum.

As routine measures, cow's milk was immediately discontinued and not resumed for several days; in breast-fed infants the nursing was forbidden for a time. Barley water, rice water or broth was substituted for the milk. Free catharsis was obtained by means of calomel and castor oil. Other drugs were rarely used.

There were in all 62 cases of infection with the *Bacillus dysenteriæ* (Shiga); of these 2 were observed during June, 33 in July, 18 in August and 9 in September. The investigation was begun late in June and ended September 15, so that only during July and August were observations carried throughout the whole of the month; hence, the small number of cases reported in the first and last months, June and September, has little significance.

Age.—Eight of the patients were under three months; 14 were between three and six months; 15 were between six and nine months; 9 were between nine and twelve months, and 15 were over one year, and of 1 the age was not stated.

Of the 8 patients under three months of age, 5 were only slightly sick; 1 moderately, and 2 severely sick.

Of the 14 patients between three and six months 7 were mild infections; 4 moderately severe; 2 severe, and 1 patient was only seen once.

Of the 15 between six and nine months 3 were

* From the Rockefeller Institute for Medical Research, and the Vanderbilt Clinic, New York City.

mild cases; 9 were moderately severe, and 3 severe.

Of the 9 between nine and twelve months 5 were moderately severe and 4 severe cases.

Of the 15 over twelve months, 1 was a mild case; 11 were moderate cases and 3 severe cases.

From an analysis of these cases it would appear that the number of moderately severe and severe cases increases proportionately with the increase in age. This is explained, however, by the fact that a majority of the mild cases under six months of age in this series were breast-fed.

Previous Illness.—An attempt was made to learn if the patient had previously suffered from diarrhea and by reason of this was more susceptible to infection with the *Bacillus dysenteriæ*. The statements were so unreliable that no conclusions could be drawn. No other predisposing cause in the way of disease could be discovered.

Symptoms had existed for 5-10 days in 17 cases
" " " " 11-14 " " 7 "
" " " " 1-3 months " 10 "
No statement " 3 "

Forty of the cases had given symptoms for one week or less showing that they were brought while they were still acutely ill.

LENGTH OF TIME UNDER OBSERVATION.

1 to 3 days	28
4 to 7 "	12
8 to 14 "	10
2 weeks and over	8
No record (seen only once)	4

Condition at the Beginning of Attack.—Of the 62 cases whose condition at the beginning of the attack was noted, 31 were well nourished; 2 fairly nourished; 11 poorly nourished; 13 were

DIARRHŒA INVESTIGATION.

Case No. ____ CLINICAL REPORT. Investigators

Clinical Diagnosis____ Bacteriological Diagnosis____ Treatment____ Result____ Date____

____190__ Name____ Age____ No. ____ Flight____, Tenement, Private, ____Hospital.

Surroundings: Cleanliness____ Ventilation____ Sunlight____ Care____ Family History ____

Personal History: How long nursed entirely ____ partly____bottle fed ____ Food when taken sick, kind Grocery milk? Boiled? Amount ____

Preceding Illnesses ____ Condition at beginning of attack ____

Present Illness: Duration____ Onset by vomiting ____ Fever____ Character of Stools ____ mucus ____blood____ Number in 24 hrs ____ Tenesmus ____

Physical Examination: Well nourished, poorly nourished, emaciated, collapsed. Anæmia ____ Fontanel ____ Mouth____ Teeth____ Skin____

Lungs____ Heart____ Circulation ____ Extremities____ Oedema ____ Tympanites ____ Restlessness, Convulsions, Drowsiness, Coma

DAILY OBSERVATIONS.

Date.	Gen. Condition Prostration. Emaciation. Fontanel.	Temperature. A.M. & P.M.	Pulse. Frequency Character	Circulatory Symps. Heart Extremities. Oedema.	Respiration Frequency Character.	Lungs. Cough. Phys. Signs.	Urine.	Nervous Symptoms Restlessness, Convulsions. Drowsiness, Coma.	Sleep No. hours Character	Food: Formula. No Feedgs. Amt Amt. taken in 24 hrs. Satisfied? Water?	Vomiting. Frequency. Character	Tympanites. Oar. Tenesmus.	Stools Number in 24 Hrs. Size. Consistency, Color, Odor, Reaction Curds Amount Mucus and Blood	Treatment. Medicinal Local	St

FACSIMILE OF HISTORY CHART.

Character of Food.—Of the 14 severe cases, 1 was breast-fed; 5 were given condensed milk; 2 Straus' sterilized milk; 2 grocer's milk; 3 fairly clean bottled milk, and 1 case not stated.

There were 14 children entirely breast-fed, 2 children were partly breast-fed; 11 children had been fed on grocery milk; 7 on bottled milk of fair quality; 8 were fed partly or wholly on sweetened or unsweetened condensed mink; 5 on proprietary foods without milk; 2 on Straus' sterilized milk; 2 on home sterilized milk; 1 on peptonized milk; 4 on general diet and no statement in regard to 7 (counted twice 1).

LENGTH OF SYMPTOMS BEFORE OBSERVATION.

Symptoms had existed for 1 day in 5 cases
" " " " 2 days " 7 "
" " " " 3 " " 8 "
" " " " 4 " " 5 "

emaciated, weak and in wretched condition; 2 were in collapse and practically moribund on the first examination.

It is most interesting and instructive to notice in this connection that of the 31 children who were well nourished, 14 had a very mild form of disease, 12 were moderately ill and only 5 severely ill; of the 2 fairly nourished, 1 was very slightly and the other severely ill; of the 11 poorly nourished, 7 were moderately, 3 severely and only 1 slightly ill. Of the 13 emaciated, 3 were severely ill, 10 moderately, and not one had the disease in a mild form. From this it would seem that the most important factor in determining the character and severity of the disease is the previous condition of the child.

Of the cases observed by us 16 were very mild, 31 were moderately severe and 14 were severe; 1 case was lost sight of and so was unclassified.

We characterized as mild those cases that had more frequent passages than normal, but not more than 10 a day, with a temperature of less than 100.5° F. These stools contained undigested food, usually mucus but no blood (such cases were not really sick). Those cases were classified as moderate that had a temperature over 100.5° F. or had frequent passages containing mucus and sometimes, a slight amount of blood. These cases were really sick and showed constitutional symptoms. The severe cases comprised those having marked constitutional symptoms and great depression with frequent mucous stools, often with much blood, and, while the temperature in these cases was usually considerably elevated, many of them and some of the most severe ran an almost afebrile course.

Thirty-four cases did not show a temperature of over 100.5° F. and thus more than one-half of those seen by us were practically without fever. Vomiting occurred in 19 cases, usually at the beginning of the attack.

The number of stools in twenty-four hours was from 2 to 5 in 5 cases; from 5 to 10 in 35 cases; and over 10 in 20 cases. In 2 cases the number was not stated.

Two cases had stools without any mucus; mucus was present in all other cases in varying quantity from a minute amount to practically the whole stool. Blood was present in 17 cases; the quantity of blood varied from a few streaks to enough to color all the mucus; no clots of blood were ever observed.

The following cases are cited as representing *types of the different degrees of severity*:

Mild (*breast-fed infant*), P. B., five months old, nursed entirely, every three hours. Had never been ill and his condition at the beginning of the attack was good. His illness began two days previously with three green mucous stools per day. No fever, no vomiting, no blood in the stools. Physical examination was negative. He was rather restless, but otherwise seemed perfectly well and had a temperature of only 100° F. The stool seen at the dispensary was green, moderately large, semi-liquid with mucus, no blood. Breast-feeding was ordered discontinued and barley water feedings substituted; small doses of calomel were given. The following day the condition was the same, character of stools unchanged and the same number. On the next day the stools were two in number, yellow, fecal, with only a little mucus and everything seemed so satisfactory that breast-feeding was resumed with an absolutely uninterrupted convalescence.

Such a case would formerly have been considered a very mild case of intestinal indigestion; but the bacteriological examination showed the presence of the acid producing* type of dysentery organism.

Mild (*bottle-fed infant*), W. P., six months old, in good general condition. Never had the breast, bottle-fed from birth; at present being fed a mixture of malted milk 3 teaspoonfuls, and water 1 pint; of this 5 ounces were given every two or three hours. Illness began three days previously with loose, mucous stools, averaging ten a day, no blood, no vomiting. Temperature 100.5° F. Did not seem ill. Acid type of organism cultivated from stools. Patient was under observation six days. Child was given calomel, and shortly afterward a dilute milk modification. After treatment was begun the stools were never more than four a day, were yellow and fecal but had mucus and a few curds. These disappeared and the child was discharged entirely well.

Moderately severe, R. W., five months old. Was nursed for four months, afterwards fed on three parts Straus' milk and two parts barley water, taking only 15 ounces of the mixture in twenty-four hours. The baby was in good general condition when taken sick two weeks before being brought to clinic; the onset had been with vomiting and fever; there had been much loss of flesh and baby was markedly prostrated when first seen. The stools were five to seven a day, large, green with considerable mucus and some blood. Temperature 100° to 101° F. The acid type of organism was cultivated from the stools. The patient was under observation nine days; was given calomel and the milk was stopped two days; then a weak milk modification given. The stools became less frequent, their character improved, and on the last day seen were only two in number, yellow and with some mucus. The temperature was normal.

Severe, M. K., seven months. Had been under observation for six months, at the beginning of which time he weighed 4 pounds 15 ounces. Had been fed on various milk modifications and had gained very well; at the time of the attack was of fair weight and in good general condition. For about ten days had suffered from symptoms of intestinal indigestion. The stools were yellow, frothy, and large, and there were ten to twelve in twenty-four hours. There was some tenesmus and mucus in great amount; no blood. Free catharsis and the substitution of barley water for the milk had no effect; stools were still frequent and yellow, and once contained a little blood. The true Shiga type of organism was found by culture from the stools. The temperature was always low never going above 100.4° F. Imperial Granum was no better borne than the barley. The child constantly failed and the stools were still frequent, as many as sixteen in a day; bismuth only colored the stools. In a week the child was in desperate straits, eyes sunken, fontanel depressed and pulse imperceptible. He was given 20 c.c. of Shiga serum in the buttocks on two successive days. Stimulation by whisky and strychnine and hot baths was resorted to. Child was also given a milk and water mixture, 1 to 6. Very decided improvement was seen almost immediately, the number of stools diminishing in one day from sixteen to four; this was three days after the first injection of serum. From this time convalescence

* The acid producing type, *i.e.*, the one that splits mannite with the formation of acid, is also known as the Flexner-Manila or "Harris" organism. The other type that does not split mannite is known as the true Shiga or alkaline organism.

was rapid and three months after the attack he is a fat, well-nourished child, taking milk well and digesting it.

Fatal Cases.—To our knowledge there were 4 fatal cases. It is possible that some others of our cases died, but not while under observation, nor were any in a moribund condition when last seen.

1. J. C., ten months old, in poor condition and emaciated; living in a tenement in fair surroundings, but badly cared for; was taken with diarrhea while being fed on a weak barley water and milk mixture. No history of previous illness, and he had been bottle-fed for eight months. The onset was without vomiting, but with moderate fever and with frequent mucous stools, eight a day, no blood. When first seen on the second day of the attack the baby was markedly anemic; fontanel depressed; heart very feeble; circulation poor; extremities cold; no distention. Lungs negative. Very restless. Milk stopped and barley water given and white of egg with whisky. Temperature 101.8° F. Stools were small and green mucopurulent with streaks of blood. Following day child was extremely prostrated, temperature 101° F.; edema of face and lower extremities; respiration shallow, radial pulse imperceptible. Death thirty-six hours later. The true Shiga type of the dysentery organism was separated from the stools on the first day of observation.

2. G. H., ten months old, in fair condition, living in a filthy tenement, with little sunlight and poor care; was taken sick while being fed a condensed milk mixture. He had been nursed until three months old. The onset was acute by vomiting, high fever, 103.5° F., and diarrhea; stools were six to seven a day and contained mucus, no blood. When first seen, four days after the beginning of the attack, the child was somewhat emaciated; fontanel not sunken; temperature 103° F.; very restless and with some tenesmus. Put on barley water and following catharsis was given a bismuth mixture. On the seventh day of the attack was given 10 c.c. of Harris serum, and these injections were repeated on the eighth and ninth days. By the fourteenth day the general condition was somewhat improved, the temperature having fallen to 100° F., pulse still rapid. The diarrhea had much diminished so that there were only two or there yellow fecal stools a day. A weak milk mixture was given with no bad effect upon the intestinal condition, but the child gradually failed, and in spite of stimulation by whisky and strychnine the extremities became cold; edema came on and the heart gradually gave out four weeks after the beginning of his attack. The mother was densely ignorant and failed to carry out directions, especially in regard to feeding; moreover, she refused to have the child admitted to a hospital. The "Harris" or acid type of organism was separated from the stools on the first day of observation.

3. A. K., three months old, fairly nourished, living in a clean tenement but with little care. Had been nursed entirely for one month. Was taken sick while being fed on Straus' sterilized milk. The onset was sudden with fever and diarrhea, no vomiting. Stools were mucous but contained no blood, twelve a day; there was much tenesmus. First seen seven days after the beginning of the attack; the child was anemic and in collapse. Fontanel depressed. Heart normal; lungs—fine râles at both bases behind. Child was admitted to the Babies' Hospital four days later and was given, with other treatment, 10 c.c. of Harris serum. Refused food and later regurgitated after feeding. Temperature remained between 103° and 105° F., and the child died forty-eight hours later. The stools had diminished to four a day. The "Harris" or acid type of organism was separated from the stools on the first day of observation.

4. M. McK., seven weeks old, a poorly nourished child, living in a dirty tenement with very poor care. Was taken sick while being fed on condensed milk and a proprietary food. The baby had been nursed for three weeks, but nursing had then been stopped because the mother developed an abscess of the breast. The onset was acute with vomiting, but no fever. The stools were five to seven in twenty-four hours; green, mucous and offensive, but contained no blood. When first seen, seven days after the beginning of the attack, the child was much prostrated and anemic, temperature 100° F., and pulse 100 and weak, cold extremities and restless. After catharsis was fed on barley water, stools remained the same; refused food and in spite of stimulation and 10 c.c. of "Harris" serum the baby died four days later after having been in collapse for twenty-four hours.

Of the fatal cases all were under one year of age; all were artificially fed and were in very poor condition when first observed; in addition, they had only the poorest care and attention.

Breast-fed Cases.—There were fourteen infants exclusively breast-fed that suffered from infection with the *Bacillus dysenteriæ*.

1. L. P., six weeks old, good general condition. Stools four to eight a day, watery, with slight amount of mucus, no blood. Five days after the beginning of the attack cathartics were given and barley water was substituted for nursing; in twenty-four hours stools became fecal and the mucus disappeared. Never any vomiting or fever. The acid type of organism was isolated.

2. F. A., six weeks old, good general condition. Diarrhea and vomiting. Stools soft and yellow with some mucus, seven in twenty-four hours. Seen only once. The acid type of organism was isolated.

3. P. B., five months old, good general condition. Onset without vomiting or fever. Three green mucous stools daily. After calomel and withholding the breast the stools became yellow and fecal, two a day, and on the third day of treatment and the fifth of the disease the child was discharged perfectly well. The acid type of organism was obtained from the stools.

4. C. F., two and one-half months old, in good condition at the beginning of the attack. Onset

with high fever, very frequent green, fluid stools with curds and much mucus, no blood, fifteen a day. Temperature 104° F. The acid type of organism found. Referred to hospital but did not go. Seen only once.

5. D. M., four months old, in good general condition; three to five green and mucous stools, no blood; diarrhea began two days before coming under observation. No vomiting or fever; child not at all sick, but the stools contained a little undigested milk and were green for four or five days. On the fourth and fifth days of treatment 10 c.c. of Shiga serum injected. Two days after this the stools became yellow and fecal and the breast-feeding, temporarily withheld, was resumed. The true Shiga bacilli were found in the stools.

6. N. H., eight weeks old, good general condition. Diarrhea with six to eight fluid, mucous stools had begun two days before coming under observation. No fever or vomiting. Castor oil and barley water were followed by prompt recovery in two days. The acid type of organism was found.

7. W. R., eight weeks old, in good general condition. Diarrhea with fluid, mucous stools began without fever or vomiting two days before coming under observation. The exhibition of castor oil and barley water was followed by recovery on the fifth day of the attack. True Shiga organisms found in stools.

8. C. J., three months old, in good general condition. Diarrhea began without fever or vomiting, three days before coming under observation; stools eight to ten, fluid and mucous, no blood. Castor oil and barley water effected a rapid cure in two days. The acid type of organism was isolated.

9. L. G., thirteen months old, fair general condition. Onset acute with fever one week before coming under observation, no vomiting. Stools had been six to eight a day fluid and mucous, no blood, and child had lost much weight. Temperature 101.8° F. Calomel and barley water given. Case seen only once. The acid type of organism was isolated.

10. J. D., one year old, good general condition. The attack of diarrhea began with vomiting and fever; stools four to nine in twenty-four hours, loose, mucous, with slight amount of blood. When seen one week after beginning of attack, temperature was 101° F. Child was somewhat prostrated and emaciated. Tenesmus and prolapse of rectum. Under treatment by castor oil and bismuth, the child improved rapidly.

11. L. A., ten weeks old, excellent general condition, had been sick for one week with diarrhea, five to six yellow, slightly mucous stools daily; no blood, no fever, no vomiting. Calomel and barley water effected a cure in two days, the stools being normal in twenty-four hours. The true Shiga and the acid type of organism were both present.

12. R. A., five months old, good general condition. Diarrhea, six to eight fluid mucous stools without blood. No vomiting or fever. Came under observation on the third day of the attack. The giving of calomel, barley water and bismuth mixture for two days, followed by a gradual resumption of nursing, effected a cure on the fifth day. The Shiga type of organism was present.

13. K. M., eight months old, good general condition. Diarrhea without vomiting or fever. Stools fluid, mucous, no blood, eight to ten in twenty-four hours. Child sick three days before coming under observation; then calomel, bismuth mixture and barley water brought about a rapid recovery.

14. G. S., seven months old, excellent condition. Diarrhea with eight or nine fluid, very mucous stools without blood. On the eighth day of illness the child was brought to the clinic. Calomel and bismuth with barley water were followed by the reduction of stools to three in twenty-four hours and by the change in character to normal.

Of the breast-fed cases whose records are complete none died, all ran a very mild course, the average being three to four days after coming under observation. Save for the bacteriological findings there was nothing to indicate that their sickness had any relation to true dysentery. These cases, moreover, with hardly an exception, were in well-nourished children. Blood was observed in but one case.

Type of Infection.—There were 42 cases in which the acid type of organism was found; 15 were infected with the alkaline or true Shiga type; in 5 cases both types of the organism were found. Of the 42 acid infections, 9 were classified as mild cases, 21 as moderately severe; 10 as severe; 2 not being classified. Of the 15 true Shiga infections, 5 were mild, 6 moderately severe and 4 severe. Of the 5 mixed infections 1 was mild and 4 moderately severe.

From this it will be seen that in the acid type of infection, as well as in the true Shiga type, the moderately severe cases were most numerous, and there seemed to be no difference in the severity of the disease attributable to the type of infection.

We did not use at all, for diagnosis, the agglutination reaction of the blood of the patients. It has been proven in children as well as in adults that this reaction, while often present, is uncertain and unsatisfactory for the reason that it appears late, not before the end of the first week, and often not before the second or third week, and may disappear early in the prolonged cases; so that we can make our diagnosis by an examination of the stools much more easily and more satisfactorily than by the blood.

Treatment.—As outlined above, the majority of the cases were treated by the usual methods both as to their management and diet. Milk, whether breast milk or cow's milk, was immediately discontinued; barley water, broth or some proprietary food, or, rarely, albumen water being given in its place; it was only resumed when the acute symptoms had subsided. Catharsis by calomel

and castor oil was the invariable rule. When there was great irritability of the intestines with tenesmus and numerous small stools, rectal irrigations, without or with paregoric by mouth, were employed. For temperature that gave rise to nervous symptoms irrigations and alcohol sponging were resorted to. A bismuth mixture was used in a few cases.

Serum Therapy.—There were in all 10 cases in which the serum was injected; 4 were infections with the acid type of organism and were given Harris serum; 6 were infections with true Shiga organism and were given Shiga serum. Only the severe cases were subjected to this treatment, as it was found that in dispensary practice the mothers would not return with the patients after injection unless the disease was apparently serious.

Of the injected series, Cases 1 and 2 were given 10 c.c. of Harris serum and did not return after the injections. Case 3, after receiving 20 c.c. of Harris serum, showed decided improvement; after the injection of 10 c.c. additional this was still more marked, but the child died of marasmus three weeks later without any return of the diarrhea. Case 4 was already improving on irrigations before the injection of the serum, so that no conclusions can be drawn. Case 5 showed decided reduction in the number of stools and improvement in their character after the injection of 10 c.c. of Shiga serum on two successive days. Case 6 received 20 c.c. Shiga serum, but the improvement in the child's condition could not be attributed to the injection.

Case 7 received 10 c.c. of Harris serum when moribund.

Case 8 (the severe case quoted above) improved very markedly after two injections of 20 c.c. each of Shiga serum, but only after an interval of three days, during which time there were additional stimulation and change of diet, so that the effect of the serum is doubtful.

Cases 9 and 10 were apparently uninfluenced by the injection of Shiga serum.

A rash similar to that seen after the employment of diphtheria antitoxin was observed in only one patient, notwithstanding the fact that the quantity of serum injected was very much greater than that ordinarily used in diphtheria.

The difficulties of administering the serum in outdoor practice must be emphasized. The quantity of serum of the present strength necessarily employed is large and must often be injected into an emaciated child, producing a swelling of a size alarming to the laity. Objection arises also on account of the pain of the injection.

From an analysis of these 62 cases observed by us, it seems that certain points are worthy of special note.

1. The unexpectedly great prevalence of the dysentery organism in cases of diarrhea in infants, at least during the summer months. Thus out of 64 consecutive cases examined in the Vanderbilt Clinic, 62 were positive.

As has been mentioned before, this is the first large series of cases examined seriatim that has been made and the result is certainly striking. It is all the more so when we consider that these were cases in dispensary practice, where with the severe the very mildest cases may be seen. Duval and Bassett examined 25 successive cases and found the organism in 19, but it should be stated that the patients were observed in a sanatorium at a distance from Baltimore where, of course, only the more severe cases were sent from the dispensaries, while ours were all ambulant patients and their stools were examined whenever there was the slightest sign of any digestive disturbance. Our cases were also seen very early whereas, in hospitals, the cases are rarely seen until their initial symptoms have passed.

2. All types of diarrheal disease, as characterized by their clinical symptoms, are to be found among these cases. Some were examples of severe and some of mild ileocolitis; others could only be classed as the mildest form of intestinal indigestion. The course of the disease, while usually short, was prolonged in 8 cases.

3. As compared with cases of "summer diarrhea" of other years those in this series were in general much milder; and possibly this was due to two factors: (*a*) The cool summer. (*b*) The increasing knowledge among the tenement population of the care of infants and their food.

4. The striking number of breast-fed infants, 14 in 62 cases, more than 20 per cent. of all.

In the series of Duval and Bassett previously mentioned, there were 4 breast-fed cases and a few others in addition have been reported. The great number in our series is accounted for by the fact that all stools from patients with diarrhea were examined. As will be remembered of our 14 breast-fed children, not one was severely or even moderately ill, and only one had blood in the stools. Such cases would therefore not be sent to hospitals, and so usually their stools would not be available for examination.

5. The serum treatment was not given in a sufficient number of cases to warrant any conclusions. While of apparent benefit in some cases, there were others in which no effect whatever was noticed. It may be that larger dosage is necessary; but, if so, the serum must be more concentrated than at present.

A FACTOR IN THE ETIOLOGY OF DISTORTED NASAL SEPTA.

BY CHAS. E. QUIMBY, M.D.,
OF NEW YORK.

One needs but a moderate acquaintance with the literature of this subject to be impressed by the uniformity with which the several authors insist that all such conditions are due to their own pet cause; or, if they admit any other possibility, that other causation is the rarest exception. Wherefore, I desire to state clearly at the outset

that I regard the factor to which I wish to call—or, more properly—to recall attention, as simply one among many causes of the condition under consideration. I am inclined to think, however, that it receives less attention than it deserves.

My position is stated very simply and briefly thus: That deflected and distorted septa are in many cases developmental defects and require no other cause for their explanation than pure chance. It is understood that cases involving definite new growth of either cartilage or bone are not included.

Recognition of the fact that deflected and distorted septa are frequently associated with high palatine, and narrow alveolar arches is not new: indeed, it is so old as, apparently, to have lost its early attire of explanatory causation and to require fresh dressing out by each new arrival in the field of rhinology. But the significance of the equally ancient observation, that in these cases there is quite constantly a difference in size and form of symmetrical parts of the facial skeleton, seems to have been quite forgotten.

One other fact is to be added: It is that narrow alveolar arch and asymmetrical facial development are found most frequently in association with triangular-shaped teeth and varying grades of irregular dentition, but seldom with the straight-edged teeth and regular dentition.

Given the above facts, our propositions are as follows: The development of the facial skeleton is never perfect; failure in development is frequently so extreme as to prevent union of the two halves, shown in harelip and cleft palate; asymmetry in development is so frequent as easily to be recognized in most faces by the eye alone. These are statements which no one will presume to question. But with their acceptance it hardly seems possible for one to object to the proposition, that in some cases the superior maxillary bones unite at an unduly acute angle; that the vomer and triangular cartilage, one or both, fail of proper articulation with the maxillary, palate and ethmoid bones. From this point the production of deflected and distorted septa is merely a question of mechanics.

Normally the developmental forces which spread the alveolar arch give a vertical resultant which is balanced by the septal tissues. But with an abnormally acute angle between the lines of pressure in the maxillary bones this vertical resultant is increased; and, if the opposing septal resistance is at the same time weakened by imperfect articulation either above or below, distortion and further deflection of those tissues are a mechanical necessity. If there is still further, at the time of the second dentition, when the face is being most rapidly developed, an eruption of triangular teeth with the almost inevitable failure of proper lateral coaptation, all the expansive force which normally comes from the growth of the teeth is lost and the distortion of the septum increases at this time instead of diminishing. The possibility of the above sequence of events certainly cannot be denied; that it does happen is a matter for clinical proof. The effects of inflammatory changes in the septum, resulting from the injury it suffers, might very properly be considered, but the mechanical side of the case seems sufficient for the present.

My own attention was called to these relations by the following clinical experience, which seems to substantiate the claim that the assumed errors of development do occur: A young girl under my care developed, during her eleventh year, a moderate tendency to mouth-breathing. Knowing that in all her earlier life her respiration during sleep had been as perfect as possible, I attributed it to a cold and neglected it. A year later, however, it had increased so that it led to an examination of the nose. There was then found a decided deflection of the cartilaginous septum with general hyperemia and swelling of the membranes. The left plate of the vomer was bent pretty sharply outward at its posterior end and apparently was not in articulation with the palate bones in the central line. Nothing abnormal could be seen in the vault of the pharynx. Not being prepared for an operation she was treated through the winter simply with sprays, but without any appreciable relief. At that time her second dentition was well advanced. She had inherited from her father the triangular teeth and they had come in very irregularly. The two lateral incisors had their inner edges rotated backward, and the whole tooth carried inward until it was overlapped by the central incisor fully one half its width. Not being satisfied with the physiology upon which advice seemed based, when a dentist was consulted regarding the regulation of the teeth, and on account of the timidity of the child, I determined to do the regulating myself. Time forbids details of the work; suffice to say that after some study of the matter it became evident that to act on the errant teeth separately, while it might bring them into line, must cause them to stand out like a fringe unless the alveolar arch was broadened, and that, therefore, this was the first thing to be done. It was equally clear that this could be done only by separating the maxillary bones. To this end a band was placed about the second bicuspid and first molar of each side that, if possible, the effect of pressure might be on the maxillary bones rather than the teeth. Pressure was made by means of a small jack-screw upon the two bands. It was made very light at first and increased slowly, but in about two weeks the central incisors had been separated a little over one-eighth of an inch, while the teeth under pressure had not been obviously moved in the bone. Soon after this, and before any effort had been made to move the lateral incisors, the child came to me asking what had happened that she breathed so much more freely.

An examination showed marked decrease in the flexion of the cartilage but no appreciable change in the vomer. When her attention was called to

it she was able to recognize clearly with her tongue the opening between the two bones in the roof of the mouth. It was evident that the bones had been separated mostly at their anterior point, as the groove in the mouth did not extend through the hard palate.

She very soon lost all tendency to mouth-breathing, and this condition of perfect respiration during sleep has continued now for three years, while the hyperemic condition of the anterior nares has long since disappeared. The difficulty experienced in this case in bringing the teeth into such coaptation that they would not again become twisted upon release of the maxillary bones has convinced me that only by a special dispensation of Providence can triangular teeth erupt in symmetrical outline. I am able to explain the results only upon the assumption that the bending of the septum was due to imperfect articulation and undue vertical pressure from the developing maxillary bones; that this pressure was relieved by separation of the maxillæ and that the cartilage was pressed into the groove thus formed. If my conclusions are correct children with irregular teeth, high palatine, or narrow alveolar arch and distorted nasal septum should be treated by the dentist and rhinologist together. Of course this work cannot be done after ossification at the line of maxillary union is well advanced; or after puberty. Yet, before this time the teeth are seldom sufficiently developed to make a satisfactory final regulation if they are of the triangular variety. Hence the earlier work should be directed specially to the correction of the nasal defect and the final regulation of the teeth left for some years later.

I am well aware that a single case does not establish a rule or principle; but the object of this paper is to establish the exception.* That deflected septa may, in some instances, find sufficient explanatory causation in simple developmental defects seems clearly shown in the above case by this sequence of events: development of mouth-breathing coincident with an exceedingly irregular second dentition following perfect respiration in early life; the discovery of a deflected septum nearly closing the right nostril; almost complete disappearance of the septal flexion, a subjective appreciation of freer respiration, and entire cessation of mouth-breathing following directly upon separation of the maxillary bones. With nasal work limited almost entirely to cases associated with pulmonary disease I have had little further opportunity of investigating the subject in children, but rather careful observation of adult cases for the past three years has caused no little surprise at the frequency with which deflected and especially dislocated septa are associated with the other two developmental defects, and has tended to confirm the original conviction as to the frequency of their etiological relations.

* Since writing the above several cases have been brought to my attention showing distorted septa with each form of defective arch in which results promise to be equally satisfactory.

ON THE ABORTIVE TREATMENT OF GONORRHEA IN THE MALE.*

BY FREDERIC BIERHOFF, M.D.,

OF NEW YORK.

The attempts to devise an abortive treatment of gonorrhea did not originate in the immediate past, but were already tried in the days preceding the discovery of the gonococcus, by Ricord, Diday and others.

To those familiar with the severity of the complications and sequelæ of gonorrhea, as well as its wide spread, through all the strata of society, the possibility of aborting this disease, in its earliest hours, or days, must appear almost as a blessing, if the cure can be effected without harm to the patient. There are two methods of achieving this result now at our disposal, viz., the *prophylactic,* by means of which those gonococci which may have obtained lodgment in the urethra are killed immediately, or shortly after the infective coitus, and the development of an inflammation prevented; secondly, the *abortive,* by means of which the already-developed gonorrheal urethritis is cured in a few days, and the pathological changes, which such an inflammation produces, are reduced to the minimum.

The prophylaxis, which is being more and more adopted, is the ideal treatment. It is possible in either of two ways; either through the use of a reliable condom (preferably of fish-skin), or through instillations, injections, etc., of the gonococcicide drugs, immediately after coitus. Thus Haussmann, Kopp and Blokusewski recommend the instillation of a few drops of a two-per-cent. solution of nitrate of silver. Probably the greatest credit, in this direction, is due to E.R.W. Frank, and Welander, for their studies in the prevention of gonorrhea, by means of protargol solution. Both, working independently of each other, succeeded through their inoculation experiments with fresh gonorrheal pus, in demonstrating conclusively that it is possible to *prevent* gonorrhea. I have adopted the prophylactic measures, in my practice, and recommend my patients to instil 2 to 3 drops of a 10 to 20 per cent. solution of protargol in glycerin into the fossa navicularis, as soon as possible after the suspicious coitus. In one case it was possible for me to discover the gonorrheal infection within ten hours after the suspicious intercourse, and to abort the disease with a single injection of 8 c.c. of a two-per-cent. protargol-glycerin-water solution. This case, which I have not included among the thirty cases referred to further on, in this article, I was able to control exactly, and I found, on the first examination, *distinct,* although few, gonococci, in the urethral scraping; at several points there were already distinctly gonococcus-bearing pus-cells. Control examinations were made after one, four, eight, twenty-four and forty-eight hours. Already after *one hour* the secretion, which was called forth profusely by the injection, was free

* Read before the German Medical Society (New York), December 7, 1903; Harlem Medical Association (translation), January 6, 1904.

of all germs, and remained so, which fact I was able to determine by repeated subsequent control-examinations, during a period of several months. The discharge rapidly lost its purulent character, after the cessation of treatment, to become purely epithelial within twenty-four hours, and disappeared entirely after another twenty-four hours.

As is the case with the prophylactic, so the possibility of an abortive treatment depends upon the fact that the gonococci, in the earliest days, when not abnormally virulent, or brought to virulence through irritants, or injury, or a markedly diminished power of resistance of the tissues, have a tendency to remain confined to the fossa navicularis, because the walls of the fossa navicularis are covered with stratified, squamous epithelium, which, as is well known, is resistant to the action of this germ. I am of the opinion that many a gonorrheal infection of low virulence dies out, upon the epithelium of the fossa navicularis, without its bearer having been aware of the fact of the infection. As a result, in all probability also of this power of resistance, the changes in this part of the urethra, demonstrable after the cure of a gonorrhea, are very slight.

If we see a case of gonorrhea early, that is, at the very beginning of the appearance of the visible discharge, then we notice, in addition to the usual reddening of the urethral orifice, beginning hypersensitiveness and a rapid increase in the number of leucocytes, as proofs of the fact that the infection has passed beyond the fossa navicularis, and has begun to develop on and penetrate between the cylindrical epithelia of the pars cavernosa. We also notice that the gonococci which, in the first hours after infection, and so long as the process had been confined to the fossa navicularis, had almost entirely been *extracellular,* now more and more come to lie *intracellular* (I refer to secretion obtained with the loop, just within the meatus, without the exertion of any pressure or stripping of the urethra, the secretion then being gently spread out, on the slide, with the loop. Not by drawing it off with another slide). The more the process extends over the pars cavernosa, and the deeper into the tissues that the infection penetrates, the less are, in my estimation, the chances for the success of any abortive treatment. The sooner one begins with the treatment, the greater are the chances of success, in the absence of complicating conditions. The complicating conditions are the presence of remains of preexisting disease; for instance, chronic gonorrheal infection of the lacunæ, glands of Littré, or prostate; and congenital malformations of the urethra, such as paraurethral passages, or abnormal width, or depth of the lacunæ.

The method of treatment has differed, with different investigators. Ricord, Debenay, Diday and others employed injections of nitrate of silver, in solutions up to five per cent. in strength. Delefosse instils a two to two and one-half per cent. solution of the drug, by means of the Guyon instillation syringe, into the urethra, applying it to the membrane, from the bulb to the meatus. This is repeated on the following day. If, on the third day, gonococci are still present, a two-thirds to one-half per cent. solution is employed. Pontopiddan reports on 160 cases treated with the two per cent. solution. He applied several drops to the fossa navicularis, after the patient had urinated. In one-third of his cases the disease was aborted; in the rest, the disease ran a mild course. Ullmann injected 3.0 to 5.0 of a two per cent. solution, 4—5 cm. into the urethra, the solution being retained for two minutes; he also reports positive results. Welander recommends, in fresh, at most two to three days' old cases, that the urethra be first wiped clean, and, following this, the injection of a two per cent. solution, which is retained for two minutes. Fèleki recommends, in fresh cases, the penciling of the urethral wall with five per cent. solution, through the endoscope. He states that, where the secretion was slight and of a serous character, one application sufficed; in other cases it had to be repeated, after two to three days. He claims to have had no complications.

Engelbrecht recommends irrigations, according to the Janet method, with 500.0 to 600.0 of a one-fifth to one-third per cent. nitrate of silver solution, after preceding cocainization of the urethra. He claims to have cured nine-tenths of his cases in two days, after four applications. Neisser recommends early irrigations with nitrate solution of 1 : 3,000 to 1 : 1,000 strength; Finger and Jadassohn report that they have had no success with this method. Tarnowsky is reported to have cured 40 to 50 per cent. of his cases of acute gonorrhea, in four days, by means of nitrate of silver solution; but reports that, in those cases which resulted negatively, the symptoms of inflammation were increased to such a degree that the treatment had to be abandoned. According to the reports of most of the observers, the reaction following the abortive attempts with nitrate of silver solution is very severe and, at times, severe complications arise, resulting even in death, as in a case reported by Cullerier and Guyon.

Another variety of the abortive treatment is the application of Janet's method and its modifications. The irrigations with permanganate of potash are recommended by Janet himself, by Valentine, Goldberg and others; Wossidlo, Horwitz, Weiss and Christian express themselves against the method, as an abortive.

Since we have come into possession of the various drugs, such as protargol, albargin, ichthargan, argyrol, etc., which destroy the gonococcus where they can reach it, while they irritate the mucous membrane but little, various investigators have tried the abortive treatment with these remedies. Thus Ahlstrom reports on 100 cases which he treated abortively. Twice daily, for the first four or five days, he injected 5.0 to 10.0 of a two to four per cent. solution of protargol. For the next three to five days the patients themselves injected with a one to two per cent. solution, which they retained in the urethra for ten to fifteen minutes.

In only 13 per cent. was there a negative result; in 8 per cent he saw complications. He must have had model patients to deal with, since the large majority of patients complain, even with injections of a one per cent. solution, of almost unbearable pain, when the solutions are to be retained in the urethra for ten minutes. Or are our American patients, perhaps, weaklings, when compared to the European? I have found, too, that with such strong solutions, the other symptoms of irritation are so severe that I should hardly recommend them. Neisser and Blaschko speak in favor of the early treatment of gonorrhea, with three to four per cent. protargol solution; Wossidlo, on the contrary, saw no benefit from it, but, rather, unpleasant results.

Casper states that he cannot say of a single case that the beginning gonorrhea was checked by means of the abortive treatment, and would, therefore, recommend its abandonment under all circumstances. Von Zeissl states that he cannot recommend it. Finger states that he believes the rapid cure of gonorrhea to be an impossibility.

Thus we see that the views for and against the abortive treatment of gonorrhea are varied.

Before the urological division of the Thirteenth International Medical Congress, Frank reported upon a series of 60 cases which he had treated according to the abortive method devised by Lewin and himself. The method, whose application and trial I had the pleasure of witnessing, during their experiments, is reported as follows: "After the microscopical diagnosis has been made, the patient passes water. If the second portion of the urine is clear, the anterior urethra is next irrigated under light pressure, with one-quarter per cent. protargol solution, until the fluid returns clear. If the patient is very sensitive, a solution of cocaine, to which, as a precaution, some protargol has been added, is injected into the urethra. Following this we make a large irrigation of both portions of the urethra, with a similar protargol solution, according to Janet's method. The solution is allowed to flow until the patient notices a desire to urinate; that is, about one-quarter to one-half liter, whereupon he empties the bladder. This procedure is repeated upon the following two days." Frank reports upon 60 cases treated by this method. In 27 (45 per cent.) the result was positive; that is, after three irirrigations (in one instance after a single one) the gonococci were definitely destroyed. In 26 cases the result was negative. In three of these negative cases gonorrheal infection of para-urethral passages was discovered; after incision of the passages, further two to three irrigations cured the cases. In two other cases, the presence of congenital folds and valves, with narrow meatus, was the cause of the negative result. In 21 cases the prostate was infected, and Frank believed that this infection had already existed at the time the attempts to abort the disease were begun. The remaining seven cases withdrew from treatment, to present themselves later as cured.

My observations, made at the time of Frank's experiments, determined me to test this method of abortive treatment. Although I have, as a result of circumstances, slightly modified the plan of treatment, to meet the requirements of my patients, it remains, in principle, that laid down by Frank and Lewin. In order to be able to control the cases more exactly, I employed it only in the cases of intelligent private patients, who, as soon as they realized the aim of the measures, were willing to help me with all their power. The method employed was as follows: A microscopical examination of the secretion was first made. If the discharge was slight, and if the majority of the gonococci still were extracellular, then the protargol solution was employed in the strength of one-sixth to one-third per cent. If the discharge was at all pronounced, or if the greater part of the gonococci were intracellular, then a one-third to one-half per cent. solution was used. The method was employed, naturally, only in those cases in which the second urine was clear. After urination, the urethra was anesthetized by an injection of a mixture of 4 c.c. of a one per cent. cocaine solution and 4 c.c. of a one per cent. protargol solution. After this the anterior urethra was cleansed with 150 c.c. of the protargol solution. Following this, an irrigation of the whole urethra was made, according to Janet's method, with 150 c.c. of the solution. The patient then emptied his bladder of the irrigated fluid. This irrigation of the entire urethra, with immediate emptying of the fluid, was repeated from one to three times in the same sitting, so that the urethra was flushed four to eight times. In addition, the patient was given a solution of protargol, one-half per cent., with which he was instructed to inject three to five times during the day, and to retain the fluid ten minutes each time. During the succeeding days, if the gonococci had disappeared, the strength of the solution and the quantity of fluid injected were diminished, to be suspended, if the result was positive, on the fourth or fifth day, at the latest. The injections by the patient were also diminished and suspended in a similar manner. Then followed the usual provocative tests and control examinations. I will state, at this point, that I consider the continued absence of discharge, and the absence of gonococci from the shreds (which should be only minimal and chiefly epithelial), from the prostatic secretion (which must also be free of pus-cells), and from the urinary sediment, and this in spite of the tests of cessation of treatment, indulgence in alcoholics, irritating injections, and coitus condomatus, to be a proof of cure, if, after control examinations covering a later period of several weeks, the patient still remain free of discharge and gonococci. Cultures, I believe, should be employed in every doubtful case. I do not, however, believe them to be an absolute necessity to determine the fact of a cure.

In all, I have employed the method in 30 cases (up to Nov. 1, 1903). In 15 cases (50 per cent.) the result was positive; in 15 (also 50 per cent.)

negative. In the positive cases, the gonococci had definitely disappeared in 12 on the second day, in one on the third day, in two on the fourth day. The duration of the treatment and tests varied from five to twenty days. In two cases the fresh gonorrheal infection occurred in the persons of patients who were under treatment for old, endoglandular, non-gonorrheal prostatitis, and in neither of the cases did the gonorrheal infection extend to the prostate. The period of incubation was two days in 5 cases, three days in 4 cases, four days in 3, five days in 1, six days in 1, two to three weeks in 1 case. The patients presented themselves on the first day of the discharge in 10 cases, on the second in 1 case, on the seventh and eight days in 2 cases, on the thirteenth day in 1 case, and on the forty-seventh day in 1 case. In none of these cases was it a first infection; in 4 cases it was a second, in 4 a third, in 4 a fourth. In the remaining 3 the exact number of preceding infections was not obtainable, but in all it was at least the second infection.

Of the negative cases, the gonococci had definitely disappeared in two cases after the fifth day (so that I might even be excused were I to class these cases as positive results); in 3 cases after the tenth day, in 1 after the sixteenth day, in 2 after the twenty-first day, in 1 after twenty-two days, in 1 after thirty-five days, in 1 after thirty-six days, in 1 after forty days; one case is still under treatment (Nov. 1, 1903). Two cases withdrew from observation before the gonococci had disappeared. The duration of the treatment and testing varied from fourteen days to a period of over five months (in the case of the patient still under treatment, where an infection of a lacuna of about 3 cm. in depth has protracted the disease abnormally). The period of incubation was two days in 4 cases, three in 5 cases, four in 1 case, five in 1 case, six in 2 cases, three or six in 1 case, and twenty days in 1 case. Ten patients presented themselves on the first day of the discharge, 1 on the second day, 3 on the third, 1 on the sixth. In 3 cases it was a first infection, in 5 a second, in 4 a third and in 3 the number was impossible to determine, although it was at least the second. The cause of the negative result was, in 6 cases, the involvement of the glands and lacunæ of the anterior urethra; in 1 case the infection, in a mild degree, of the prostate, in a patient who, in spite of my admonitions, repeatedly subjected himself to sexual excitation. In 1 case (one of the patients who withdrew from treatment), the urethral glands and prostate became infected, upon an old, postgonorrheal catarrhal inflammation, for which I had had him under treatment prior to his gonorrheal reinfection. In six cases there was no demonstrable cause for the negative result; but these were all cases which could be discharged as cured in from three to five weeks; in 1 case (the second patient, who withdrew from treatment because he had to return to his out-of-town home), the gonococci were almost entirely gone at the time of his departure.

In only one of the cases (one in whom the abortive attempt was begun with argyrol, to be later supplanted by protargol), did I notice any graver complication, and this was a gonorrheal tendovaginitis of the extensors of the fingers of the left hand, at the forearm and wrist, which appeared on the third day of the discharge and the fifth following the infection. The course of the complication was short and mild, and the result a complete restitution of function.

Several of the patients complained of an unpleasant sensation of burning and tenesmus after treatment, which sometimes lasted one-quarter to one-half hour, even when the weaker solutions were used. This was, however, but little greater than where the usual irrigations form the treatment. Isolated cases showed an extraordinary sensitiveness toward the drug, in that periurethral edema, of varying severity, developed. This disappeared rapidly, however, and formed no real obstacle to the treatment. Almost all of the cases, negative as well as positive, were subjected to control examinations, after an appreciable time had followed their discharge as cured, and all were found to have remained well, and to be still free of gonococci.

That a posterior urethritis (prostatitis) developed in only two of this series of thirty cases (6.6 per cent). I regard as the best argument for the utility of the abortive treatment. If we compare these 6.6 per cent. with the high percentages reported by investigators, under other forms of treatment, then we might say that, if the abortive method did nothing else, it would still be available. According to Leprevost (1884) a posterior urethritis occurred in one-sixth of his cases; Eraud (1886) saw it in 80 per cent., Jadassohn (1889) in 87.7 per cent., Letzel (1890) in 92.5 per cent., Rona (1891) in 62 per cent., Phillipson (1891) in 86.6 per cent., Dind (1892) in 93 per cent., Ingria (1893) in 59 per cent., Finger (1896) gave it as 63 per cent. in his private patients, and 82 per cent. among his dispensary clientèle. In 1890 he gave the figures as 33.5 per cent. Frank (1900) saw it in 32.25 per cent. among his dispensary patients. In his statistics on the abortive treatment, he stated that infection of the prostate occurred in 35 per cent., but as previously remarked, he was of the opinion that this had occurred before the beginning of the treatment. In my two cases it occurred, as before mentioned, in one case following (and, I believe, as a direct result of) repeated sexual excitation during the acute stage of the disease; in the second as a result of a preexisting catarrhal inflammation of the prostate.

That the lacunæ and urethral glands became involved in 6 cases (20 per cent.), I do not consider as an argument against the abortive treatment. The solution may have been too weak, since in only one of the negatively resulting cases was a one-half per cent. solution employed, and this in the case with an old inflammation of the urethral glands and prostate.

I know that the number of my cases is too small to allow me to draw definite conclusions; neither do I wish to claim that the method mentioned in this article is the best one. I only wish to present the experiences I have gained through its application as proofs of the facts: That the abortive treatment of gonorrhea is possible; that if it be employed *early*, the percentage of cases in which a positive result may be obtained is a fairly large one; that when one employs only those drugs which, while they kill the gonococci, do not injure the mucous membrane, the percentage of complications will, most likely, be smaller than has heretofore been supposed; and, finally, that, should the attempt to abort the disease fail, the patient will not have been injured.

53 East Fifty-eighth Street.

DIFFERENTIAL DIAGNOSIS AND TREATMENT OF CHANCROID AND CHANCRE.

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The differentiation between soft and hard chancres, or chancroids and chancres, is a point upon which a great deal depends, and yet it is one of the hardest problems at times with which the genito-urinary surgeon contends. It is the purpose of this paper to take up the differential diagnosis of these two exceedingly common venereal sores and to outline the treatment (local) of each. If the sore be soft the local treatment will be all that is necessary in the majority of cases; if hard, constitutional symptoms are sure to follow sooner or later, and the sooner these come the better it is for the patient. It is, in the majority of cases, absolutely impossible to convince the patient that two years' treatment is necessary to cure a disease, the only manifestation of which he has seen has been a small insignificant sore on the penis. For this reason, even if the diagnosis is reasonably sure, it is better to wait until constitutional symptoms have manifested themselves before beginning the systemic treatment.

In diagnosing, the first thing to bear in mind is the general appearance of each sore. Then if the sore be typical the diagnosis is easy. A hard or syphilitic sore is generally small and insignificant, situated on or near the corona and generally near the frenum. The edges are indurated and its base is excavated and has a smooth floor with little or no secretion. On the other hand, a soft sore may appear anywhere on the penis, is generally multiple and larger, its base being irregular and covered with a purulent discharge.

Other important points to aid in the diagnosis are as follows: *Incubation period.* In a chancre it is always more than a week and generally from ten to fourteen days. In a chancroid it is always less than a week and generally from two to three days. When this can be positively determined it is a great aid in our diagnosis, but in a great majority of patients, and especially hospital patients, it is next to impossible to determine at just what time the infection took place.

Adenitis.—The inguinal glands are enlarged in both cases, but are much more apt to break down in chancroidal infection. In the syphilitic sore they are more shotty, uniformly enlarged on both sides, and do not break down as a rule. As the disease progresses the cervical and epitrochlear glands become enlarged. This never happens in chancroidal infection.

Multiplicity of Sore.—As stated before, the hard sore is generally single and the soft may start singly, but almost invariably the discharge causes more sores to appear.

Position of Sore.—In more than 1,000 cases of syphilis I have found that in two-thirds the sore was found on the corona and near the frenum. The chancroid may appear at any point where the membrane was abraded and the infection entered.

The above points will aid in diagnosing the majority of cases, but in a few it is absolutely impossible to state positively the exact nature of the lesion. This is especially true of the cases where both infections occur simultaneously. These patients will develop a soft sore in a few days after intercourse, which will not yield readily to treatment and by the tenth and twelfth day will become hard. In other cases the sore may be indurated from excessive burning with strong caustic and mislead the physician. As the treatment is about the same in both cases, however, the diagnosis only helps us in making a better prognosis, and if it is at all in doubt we should be very guarded in the prognosis until sufficient time elapses to allow secondary symptoms to appear.

I have found the best method of treating these cases to be one of absolute cleanliness. Nothing is to be more condemned than the excessive cauterization practised by so many physicians in all cases of venereal sores.

In either case, whether chancre or chancroid, the first thing to do is to thoroughly disinfect the lesion and to wash the entire penis with green soap and water, then get rid of the soap with alcohol or ether and thoroughly cleanse the sore or sores with a solution of bichloride of mercury, 1 in 2,000. The entire penis is then wrapped in gauze saturated with the above solution, and the patient instructed to keep this wet for about twelve hours. The gauze is then removed and the sores are dried and thoroughly dusted with aristol (pure). This is an excellent dusting powder and keeps the sores dry and has the advantage over iodoform of being odorless, and that is one thing that these patients who are generally hypersensitive most appreciate. After this thorough dressing the patient generally requires nothing but a solution of bichloride (1 in 5,000)

and the aristol. The sores should be washed every three or four hours, dried, and a fresh application of aristol made.

This treatment is generally all that is necessary for an average case of chancroids. If, however, there are complications, other procedures may be necessary before the sores can be thoroughly cleansed. One of the most common complications is phimosis or paraphimosis. This should be relieved by slitting up the dorsum and laying the glans bare. The rest of the operation for circumcision may be done later. Care should be taken that the cut surfaces of the prepuce do not become infected. They should be covered with aristol.

The above treatment applies to chancroids and all mixed sores. If the diagnosis of chancre be positively made the same procedures may be followed, but I have found that if, after cleansing the sore, a dusting powder of aristol and calomel (equal parts) is used the results are better. Under no circumstance should the patient be put upon antisyphilitic treatment until the diagnosis be confirmed by the appearance of secondary symptoms.

I believe that if this tretment be followed out in all cases (especially chancroids) that the sores will heal much more readily and the danger of complications will be arrested. The old custom of burning every venereal sore with pure carbolic acid or nitric acid only aids in delaying the healing process and makes an unsightly scar in a great many instances.

335 East Eighty-seventh Street.

THE OCULAR SIGNS OF SYPHILIS.*

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It would be of much interest and decided value if it could be shown by statistics just what proportion of syphilitics present ocular lesions, but it is doubtful whether this will ever be accomplished. Patients thus afflicted are not prone to tell all they know even under the most artful questioning, so that all figures bearing upon this question must naturally represent a lower percentage than actually obtains. Moreover, syphilis may be contracted venereally and yet without the knowledge of the patient (as for instance, urethral chancre) and if the secondary symptoms are not marked such a patient could conscientiously aver that as far as his knowledge went he had never been infected. Finally, many cases of syphilis are contracted innocently, and thus without the slightest supicion on the part of the patient of the nature of their malady. Should anyone be disposed to smile at the idea of innocent syphilis, let them consult Bulkley (Syphilis Insontium, p. 894), who has brought together authentic histories of over 9,000 cases of chancre situated elsewhere than on the genitals—and be convinced. There is no tissue of the eye or its appendages that has not been invaded by syphilis. Just what percentage of syphilitics exhibit such ocular invasion is, as has been said, impossible to say. DeWecker, the noted French ophthalmologist, says 15 per cent. Alexander (Syphilis und Auge, 1889) quotes six foreign ophthalmic observers besides himself. Their combined statistics include 138,000 cases, among whom 2,998, or 2⅛ per cent., furnished a syphilitic history. In 1,385 ophthalmic cases with a specific history, Alexander (*loc. cit.*) found the ocular muscles affected in 15 per cent., the uveal tract in 24 per cent. and the optic nerve and retina in 48 per cent. of all the cases.

Syphilis in the visual sphere may assume any one of the four usual phases, namely the primary sore, the secondary, the tertiary and the hereditary phase.

The most usual site for the primary sore is at the margin, or just within the margin of the lids. In his work (*loc. cit.*), Bulkley reports 159 such cases. They may be induced by poison carried to the eye by the finger, or, as frequently occurs, by the use of the tongue for the removal of foreign bodies in the eye. This custom is not uncommon among the lower classes, and if oral syphilis be present in the one who performs this absurd office an initial sclerosis appearing on the lid is entirely possible.

Secondary syphilis may affect the cornea, the uveal tract or the optic nerve and retina, but it certainly has a marked predilection for the uveal tract. It is a fact as well known to-day to syphilologists as to ophthalmologists that the iris is quite as likely to be the seat of secondary signs as the skin, the oral and the rectal mucosa. The percentage of cases of iritis in which syphilis is operative is stated by Von Arlt to be 29 per cent.; by de Wecker, 55 per cent.; by Mauthner, 70 per cent.; Schnaübel, 48 per cent.; von Graefe, 60 per cent.; Knapp, 30 per cent.; and Alexander, 60 per cent., all quoted by Alexander (*loc. cit.*). This makes a mean percentage of 50 per cent., which agrees perfectly with the figures of Brunson of the Hot Springs of Arkansas, who has probably seen more syphilis than any ophthalmologist in this country. So that every iritis is open to the suspicion of being syphilitic until trauma, tuberculosis, microbic infection or the rheumatic diathesis have been plainly shown to be causative. Choroiditis is perhaps as frequently syphilitic in origin as iritis, and is even more valuable diagnostically than iritis, inasmuch as it almost invariably leaves scars in the choroid that may be studied years afterward in cases of doubtful tertiary aspect. Iritis on the other hand may be so successfully treated as to leave no telltale traces behind. But should there remain attachments between the iris and the lens capsule, they are often of great assistance in establishing the probable history of a previously active syphilis.

The optic nerve is a bit of tissue that is as often tertiary as secondary in its involvement. Nine

* Read before the North Branch of the Philadelphia County Medical Society.

German observers found optic neuritis of specific origin in 56½ per cent. of 981 cases. Oftentimes this was a part of a central tertiary syphilis, but the fact stands out that this bit of highly specialized tissue is peculiarly susceptible to the action of the syphilitic poison.

Most frequent of involvement in the tertiary process, however, are the intra- and extra-ocular muscles. Alexander (*loc. cit.*) found 56 per cent. of 269 extra-ocular palsies to be luetic, while 77½ per cent. of 76 intraocular palsies were definitely syphilitic. This is a very high percentage, but Alexander is a very high authority and his figures are pretty well supported by those of other workers. The appearance of an ocular palsy, heralding itself by the sudden onset of double vision, is a grave omen at best. In the absence of diabetes or trauma, it generally signifies beginning obliterating endarteritis in the carotid system of vessels. Sudden fleeting palsies of a few days duration occurring at intervals of a few months or years are almost invariably the warning signals of locomotor ataxia or general paresis. Formerly they were called rheumatic for want of a better pathology, but to-day we know more of what they mean.

Finally, tertiary lesions may appear in the lacrimal sac as extensions of similar lesions in the nose and accessory sinuses; and also in the lids as ulcers or broken-down gummas. Gumma of the iris is somewhat rare, but sometimes offers a classic picture of this phase of syphilis.

Hereditary Syphilis commonly affects the cornea in childhood and young adult life, although the ocular muscles are also sometimes hereditarily involved. Interstitial keratitis is the form assumed by this phase of the disease. A tendency to run its course is the most marked characteristic of the affection. The flat nose, bluish gray-white corneas, mouths with scarred corners, depressed cheek bones and imperfect teeth make this a clinical picture that should be relatively easy of recognition. Deafness due to inflammation of the auditory nerve and its terminals is a frequent accompaniment of the ocular lesions. Indeed, Jonathan Hutchinson asserts that notched teeth, bluish scarred corneas and deafness make a trinity on which the diagnosis of hereditary syphilis may be based in nearly every case.

Inasmuch as syphilis generally attacks the eye savagely without regard to the tissue involved, patients as a rule appear in the early stages of the disorder, affording opportunity for prompt medication, and the results of the treatment of syphilitic eye diseases are therefore usually very gratifying. Moreover, the ease with which the effects of the treatment may be daily studied and seen makes the treatment of ocular syphilis peculiarly satisfactory. Necessarily the caprice of the ophthalmologist will decide what form of mercury shall be exhibited, but whatever method be employed, one thing is certain; that is, that the pilocarpine or sweat cure will tremendously assist the efficiency of whatsoever of antisyphilitic remedies may be resorted to.

DIAGNOSIS AND TREATMENT OF SYPHILIS OF THE CENTRAL NERVOUS SYSTEM.

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A SHARP dividing line should be drawn between the immediate and remote effects of syphilis of the nervous system. The first is the result of direct action of the luetic virus, and the second is due to organic changes which follow long after the infection has disappeared. In this paper we have to deal only with the immediate infection, the symptoms of which make their appearance usually from six months to two years after the initial lesion, although they have in some cases appeared later.

Ayers (*Pennsylvania Medical Journal*, August 1903, p. 565) classifies the underlying pathological conditions of brain syphilis as (1) a localized meningitis leading to thickening and infiltration, (2) inflammation of the arteries leading to thrombosis, (3) gummatous deposits or tumors and (4) degeneration of nerve structures. Gummatous growths and tumors rarely offer difficulty in diagnosis, producing symptoms which are characteristic of new growth in the brain or cord. The history of a chancre or without this history, the rapid onset and the therapeutic test easily determine the nature of the growth. Thrombosis of arteries and meningeal thickening ofttimes furnish a group of symptoms which are not easy to diagnose. Given the history of infection, the multiplicity of symptoms and the absence of systematically arranged symptoms are features upon which one can place much confidence. In looking over my records and those of the Medico-Chirurgical Hospital, I was unable to find two cases which were exactly alike even in some of the essential points, except perhaps in the distribution of the palsies which usually are hemiplegias or monoplegias.

Paralysis of the cranial nerves, when there is no history of traumatism, is a third factor in favor of syphilis. The fifth and seventh pair are most apt to escape, whereas the sixth is usually involved. In fact, so often is paralysis of the sixth due to syphilis that some authorities regard it as almost invariably due to luetic infection. Willot (*l'Echo médical du Nord*, April 19, 1903, p. 183), however, reports 15 cases of paralysis of the external rectus which were due to influenza, and he believes that we are too apt to regard paralysis of the sixth as always syphilitic. The fact remains, however, that in a great majority of cases syphilis furnishes the virus, and when cranial nerve palsies are found associated with other symptoms of "nervous syphilis," it is strong presumptive evidence of the nature of the trouble. By way of illustration:

Case I.—C. F. H., aged thirty-five years, had a chancre about eight months ago, followed by a profuse eruption. He now complains of head-

ache, vertigo, double vision and drooping of the right upper eyelid. Examination reveals ptosis of the right upper eyelid, marked rotation of the right eyeball upward and outward, inequality of pupils (the right larger than the left) increased deep reflexes and an exalted mental state and a loquacity in excess of his usual habit. The case is clearly one of syphilis of the brain and the eye phenomena furnish strong corroborative evidence.

Inequality of pupils is found in a large number of cases, probably in two-thirds, but in itself is of little value, since it is a common symptom in brain and cord disease. It is, however, of value when associated with other symptoms. Of more importance is irregularity in the pupillary border, which when present points to an old syphilitic iritis. It is of especial value when a history of infection is denied by the patient, for usually it implies the existence of syphilis at some time. It is a local condition, not connected with the nervous system, and only is a guide, not always infallible, but usually of very great help.

Apoplectoid and epileptiform attacks are frequent and their significance may easily be overlooked. Such attacks may come on suddenly, without warning, or they may be preceded by a numbness in one or more extremities, and after the unconsciousness, the patient may in a little while be himself again or parts of the body may be paralyzed. Attacks of unconsciousness or convulsions may be the first warning of the patient's condition or they may only be an incident in or a part of a group of symptoms already existing. In the latter event their presence but adds confirmatory evidence to a diagnosis already made. The appearance of attacks of unconsciousness or convulsions in an adult apparently healthy previous to their advent, should call forth a most careful search for a history of syphilitic infection and other symptoms corroborative of brain syphilis. Some authorities regard epileptic seizures which develop after thirty years of age as almost invariably caused by syphilis. This is hardly borne out by statistics, but the fact remains that a large number at least are syphilitic in origin. On the other hand, fainting attacks in an apparently healthy man, are so unusual that the gravity of the underlying cause is forced upon the physician. By exclusion of other causes, syphilis will be found in many cases, and other symptoms, if diligently searched for, may confirm the diagnosis. A case in point is that of

Case II.—M. S., aged forty-three years, who had a chancre some months before the nervous trouble began. At the time of his first visit he had been ailing for seven weeks, complaining of a pain in the right leg so severe as to keep him awake at night. Sept. 12, 1901, some weeks later, he complained of a "sudden stopping of the heart," feeling as though it had ceased to beat, became faint but was not unconscious. He was carried home and put to bed. Since then he complains of a weight in the right arm, and attempts to write, cause cramping of the fingers. Nov. 21, 1901, two months later, as he was about to get up in the morning, he noticed black spots before his eyes, and then became unconscious. He now has diplopia, slight paresis of right side, increased knee-jerks and marked depression of spirits. Cardiac and renal functions are normal. In this case the apoplectiform attacks are the dominating feature and, together with the history of chancre make the diagnosis quite positive.

Instead of recurrence of attacks of unconsciousness and convulsions, one may have recurrent temporary palsies, and recurrence of palsies is a most characteristic symptom of syphilis, whether of the brain or cord. When due to brain lesions they usually are monoplegias or hemiplegias, and, as a rule, are not accompanied by unconsciousness. In fact, a monoplegia or hemiplegia, gradual in onset, without unconsciousness, accompanied by spastic reflexes on the affected side, and showing a tendency to improvement with subsequent relapse, is, almost without exception, syphilitic and due to a thrombosis of a cerebral artery. A good example is

Case III.—G. L., sixty years old, infected by syphilis six months previous to onset of present trouble. He awoke one morning to find a "feeling of pins and needles" and a weakness in his left arm. During the following three days the arm gradually grew weaker but not absolutely paralytic. Three weeks previous he had much headache. We found him to be well nourished, his chest and back covered with numerous copper-colored scars, pupils equal, moderately dilated, responsive to light and accommodation; all movements of the left arm were weak but not entirely lost, biceps tendon and knee-jerks on the left were spastic and all muscle-jerks and deep reflexes on the right were increased. Under antisyphilitic treatment the arm improved.

Somnolence is a symptom of great value in the diagnosis of brain syphilis, being present in a majority of the cases. It is of especial value when associated with other evidences of syphilis of the brain.

Mental changes are observed in many cases but they are not diagnostic in themselves. The psychoses vary from slight changes, a feeling of well-being and self-satisfaction, to maniacal and melancholic outbreaks. The subject of mental state is too comprehensive to admit of discussion in this paper.

To sum up briefly, variability in symptoms, absence of systematic grouping of symptoms, paralysis of cranial nerves, Argyll-Robertson pupils, irregularity of pupillary margin, inequality of pupils, apoplectiform and epileptiform attacks, recurrent palsies usually without loss of consciousness, numbness in extremities, increased reflexes, headache, vertigo, somnolence and altered mental states, are symptoms which point to syphilis of the brain and its coverings.

It is impossible to differentiate, in so brief a paper, between this condition and other diseases. Suffice it to say, however, that paresis, with which

this condition may be confounded, may be distinguished by its making its appearance quite late, ten or more years after the first infection, and by the early appearance of mental symptoms which usually precede the motor phenomena.

In syphilis of the cord we have a distinct group of symptoms, first described by Erb, characterized by a slowly oncoming spastic paraplegia, atrophic at times, contractures of the muscles, with involvement of the bladder, slight disturbance of sensation, with a tendency to improve and again relapse. The essential point is the widespread involvement of the entire cord, more extensive, however, in one region than another, giving rise to complete loss of function in certain parts and preservation in others. Without even the history of a chancre, a diagnosis of syphilis of the cord may be made, especially when brain symptoms are present, which is usually the case. A case which illustrates typically disease of the brain and cord is that of

Case IV.—D. B., whom I had under observation for about six years. He was thirty-nine years old, and his first symptom developed several years after the appearance of the chancre. He first complained of recurring numbness in one or more extremities, some loss of control of bladder and occasionally of the rectal sphincter. Some months later he rather suddenly lost power in the left leg and partially in the left arm but was not unconscious. He had headache and vertigo and at times had difficulty in speech (motor aphasia), which passed off as quickly as it came. Diplopia was present throughout. Examination revealed a spastic palsy of the left leg and a partial palsy of the left arm, a spastic knee-jerk on the left and an absent knee-jerk on the right, ataxia in the left arm, ptosis of the left upper eyelid, the right pupil oval and contracted, the left irregular and dilated. Sensation to touch was present but he could not distinguish heat from cold and could not always recognize a pin prick. He had the classic Argyll-Robertson pupillary phenomenon and paralysis of the left external and superior rectus muscles. With the ophthalmoscope the right eye showed a low grade of optic neuritis and the left beginning optic atrophy. Four years later he was bedridden and otherwise about in the same condition as above described. His mental state was good but he had difficulty in speech at times. With slight improvement and again exacerbations, he continued in much the same condition for six years and finally died from pneumonia. A post-mortem examination showed, in addition to the pneumonia, syphilis of the brain and cord and their coverings and a chronic nephritis.

It is true that not all cases of syphilis of the cord are as typical as the above case or of the type described by Erb, but the essential feature is usually present, namely a widespread but irregular involvement of the cord.

Little can be added to the approved treatment of to-day. Potassium iodide and mercury do all that drugs can do when administered properly. The best method is the intermittent use of both drugs. Inunctions (the ideal method of administering mercury) may be used twice daily until the physiological effect is reached, either alone or with ascending doses of potassium iodide. After a mild gingivitis is produced, mercury may be withdrawn, and the iodide continued alone for a period, after which inunctions may again be instituted. In spinal syphilis, especially, should treatment be continued at intervals for several years because of the great tendency to recurrence.

The hypodermic administration of mercury has little to commend itself, and the annoyance of abscesses and danger of consequent gangrene, render this method inferior to the administration by inunctions.

THE RECOGNITION AND TREATMENT OF SOME OF THE PHARYNGEAL LESIONS OF SYPHILIS.

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As the pharynx is the most common local site of the various manifestations of syphilis and as the lesions of this disease are seen here in one form or other in the vast majority of syphilitic patients, it is desired at this time to call attention to the more prominent features indicative of the presence of but three of these lesions, namely, the erythema; the mucous patch; and the ulceration, and to briefly outline the form of treatment which has proven most successful in my hands.

Syphilitic erythema as a secondary manifestation of the disease, may be, and I believe often is, mistaken for catarrhal pharyngitis or tonsillitis. The subjective symptoms in many cases are essentially the same and as in private practice the question of syphilis is not usually considered in what appears to be a simple case of subacute pharyngitis, it is probable that many errors are thus committed and the disease proves rebellious to a form of treatment that is not at all indicated. An objective examination of the pharynx should, however, make the diagnosis perfectly clear in the great majority of cases, and under such circumstances the erythema is usually symmetrical, being limited in outline by abrupt, well-defined margins from the healthy mucosa; the contrast at times being most striking, as the patch of congested tissue may be limited to but one pillar, or involve an entire half of the soft palate, stopping in the median line by a limit as if made with mathematical precision. While the color of the affected area is not always characteristic, yet it differs from that of simple erythema, inasmuch as it presents a deeper brick-red or more of a copper hue, and as a further characteristic there is a marked tendency to the development of small irregular patches of cloudy swelling of the epithelium, in this form being shown by linear semi-translucent areas or minute irregular shaped patches.

When these areas of epithelial change become larger, well defined and present a whitish or bluish-white color, they then constitute the second

phase of syphilis, which it is desired to consider—the so-called mucous patch. These are constantly found in cases where the pharynx is involved, and while they may appear anywhere on the mucosa of this region, yet their most constant site is upon the soft palate, pillars and tonsils. Oval, circular or stratiform in shape, they present a slight elevation upon the somewhat swollen and hyperemic mucosa and partake in their symmetry of the disposition of the erythema in this respect. This specific manifestation is practically characteristic and it is hardly possible for one not to recognize it, although it has been confused with herpes of the pharyngeal mucosa; the latter is quite rare however, is attended with considerable pain and consists of groups of broken down vesicles with detached epithelium. In addition to the presence of the mucous patch upon the site previously mentioned, it is also commonly seen where irritation exists, especially at the sides of the tongue and either here or on the buccal surface in the immediate vicinity of a diseased tooth.

While both the erythema and mucous patch present a degree of considerable import on account of their early appearance and thus by their presence enabling one to prevent further and more serious phases of the disease, the syphilitic ulceration is far more fraught with danger to the patient and its early recognition is essential in order to prevent tissue destruction that may seriously endanger life. The areas of tissue disintegration at first shallow, cover a wide, irregular surface and rapidly cause the soft tissues to melt away, while the affected parts are covered with a thick, muco-purulent, offensive secretion. Unlike other affections seen here, the tendency to disintegration and perforation of bone is most marked, and with but little or no pain a large, ragged opening may be rapidly produced between the oral and nasal cavities; osseous destruction being especially marked when an ulcer occupies any portion of the palate. This tertiary phase of syphilis resulting from the breaking down of the gummatous deposit can rarely be mistaken for other pathologic changes in this region, although under such circumstances the question of tuberculosis, lupus and carcinoma rarely may enter into the differential diagnosis, while in a few cases I have seen tertiary ulceration of the tonsils treated for several weeks as well-marked cases of diphtheria. As carcinoma and lupus of this region without manifestations elsewhere are extremely rare and as a tuberculous ulceration of the pharynx of such degree as to at all simulate syphilis would be accompanied with prominent laryngeal and pulmonary symptoms, it seems unnecessary to further indicate any material differences here, while diphtheria can always be recognized by the presence of the specific organism and any confusion between the two diseases can only be the result of gross carelessness.

Three of the most important factors, however, in the recognition of pharyngeal syphilis remain to be mentioned, and while the local lesions in themselves often are sufficiently characteristic to be readily recognized, yet in order to be perfectly secure in the diagnosis, evidence of one at least of these factors should be obtained. I refer to the history of the initial infection, the examination of other portions of the body for evidences of the disease, and finally the results obtained by specific treatment.

As is well known, it is often impossible and frequently not advisable to obtain the history of the primary infection, as in those cases where the question is asked in regard to a primary sore, its presence is usually denied or in late cases of tertiary ulceration, the patient may be perfectly sincere in denying its former presence. A negative history is therefore of but little value and if the local lesions are not sufficiently characteristic, dependence must be placed upon the two other factors mentioned.

In both the erythema and mucous patch, examination of other parts of the body will, in the vast majority of cases, reveal the scar of the chancre, the dermal eruption will be well marked, or in case the latter has faded away, some discoloration in more or less symmetrical areas will usually give a clue to the nature of the throat lesion, while in many cases of tertiary ulceration with both these factors indistinguishable, dependence will have to be placed upon the postcervical glandular swelling, and, if present, of the nodular swellings over the tibia region.

While tuberculosis is usually affected adversely by antisyphilitic treatment, yet pharyngeal carcinoma for a week or two may present some slight improvement under such conditions, but this is transient and in some cases, especially of tertiary ulceration, it is almost impossible to be assured of the diagnosis until the favorable results of specific treatment have been observed.

While both local and general medication have their place in the care of the syphilitic patient in whom the pharynx is involved, yet the latter is of far more importance and many cases in my experience receive no added benefit from local applications. For the erythema mercury is essential, and usually the protiodide in one-quarter to one-third grain doses two or three times daily, will rapidly cause this symptom to subside, while in occasional cases an astringent gargle such as that composed of rhus glabra will accelerate the disappearance of the congestion.

The same form of mercury has also given me the best results in the treatment of the mucous patch, but often the area of epithelial degeneration proves most rebellious to treatment and the occasional application of a 20 to 50 per cent. solution of nitrate of silver will be of material aid, while in other cases the silver salt will apparently be of no value at all and then chromic acid applied locally by moistening a few crystals on the end of an applicator tightly wound with cotton, will often cause the rapid disappearance of the patch. In the mucous patch seen well on during the early tertiary stage of syphilis, mercury will often not only be of no benefit, but will in a

few cases apparently aggravate the condition. Under these circumstances three to five-grain doses of potassium iodide will usually produce marked relief, and the necessity for local treatment either with mineral astringents or caustics will be obviated.

The indications for treatment of the tertiary syphilitic ulceration demand most active measures, as the tissues break down almost within a few hours and serious if not fatal consequences must necessarily ensue, unless the destructive process be checked within a very short time. Iodide of potash should be immediately exhibited in from 15 to 20 grain doses, three times daily and increasing the amount by five-grain doses until a favorable action upon the syphilitic process is observed or tolerance has been reached. Frequently one, two or three hundred grains daily will be necessary and the amount used should depend entirely upon the result obtained. At the same time mercury in the form of the bichloride or protiodide should also be administered and in severe cases, especially when the osseous tissue is beginning to break down, it should be given either by hypodermic injection or inunction. Locally, necrosed bone should be removed when it has separated from the surrounding tissues, exuberant granulations controlled, and a cleansing antiseptic mouth-wash may be ordered to remove the purulent débris.

NEW STAIN FOR DIPHTHERIA BACILLI.

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Though Löffler's blue properly employed gives as a general rule very satisfactory results in the staining of the *Bacillus diphtheriæ*, it is an acknowledged fact that in some cases it fails to bring out the methachromatic granules which play such an important part in the diagnosis of this microorganism; the same is true of Roux's and other stains commonly used. Neisser's stain shows the granules well, but, unless used with a good deal of care, it also fails in many cases. This is especially the case when staining smears made directly from throat exudates.

While experimenting with Romanowsky's chromatin stain for malarial parasites prepared with Borrel's blue instead of Höchst's, it occurred to me to try Borrel's blue in the staining of the *Bacillus diphtheriæ*. Borrel's blue is prepared by the dissolving of a few crystals of silver nitrate, about four grams, in 50 c.c. of distilled water and adding 100 c.c. of normal caustic soda solution. The black precipitate which is formed is washed several times in distilled water and then added to 250 c.c. of saturated water solution of Grubler's methylene blue. The mixture is placed in the incubator at 37° C. during eight days and then decanted. The solution has a deep violet color.

I used at first Borrel's blue in several strengths; then I combined it with vesuvin. A mixture prepared according to the following formula gives very good results:

℞ Borrel's blue ..... 1 c.c.
Vesuvin, watery solution, 1/100,000.... 50 c.c.

The vesuvin should be dissolved in boiling water.

Diphtheria bacilli stained with this solution show the metachromatic granules much better than with Löffler's blue, and this mixture does very well for specimens with a large number of diphtheria bacilli, but when these are scarce and other throat organisms are abundant, it is sometimes difficult to find the characteristic bacilli. For this reason I have devised a method of staining by means of which all other bacteria usually present in the throat with the exception of yeast cells and some large non-identified cocci, are decolorized, the bacilli of diphtheria appearing as pale blue rods with deep reddish-brown granules, in the almost colorless field.

The method of staining is the following: Prepare films in the usual way: (1) Borrel's blue, 5 minutes; (2) wash in distilled water; (3) Lugol's iodine solution, 1 minute; (4) wash in distilled water; (5) decolorize in absolute alcohol until no more blue is given off; (6) wash in distilled water; (7) dry and mount.

The smears should be thin and evenly spread, otherwise the decolorization will not be uniform. The best results are obtained with cultures from eighteen to twenty-two hours old, grown at 37° C. Cultures grown above 37° C. do not stain so well. Smears prepared directly from the swab stain very characteristically, so that the disease can be often diagnosed by staining smears from the throat exudate.

MEDICAL PROGRESS.

MEDICINE.

Volumetric Estimation of Sugar in Urine.—A new method of rapidly determining the amount of glucose in urine is published by E. Riegler (Münch. med. Woch., Feb. 2, 1904), and is destined to come into common use. It is based upon the fact that glucose is oxidized in the presence of permanganate of potassium with the formation of carbonate of potassium and carbon dioxide. By adding sulphuric acid, gas is liberated from the former and can be measured with the latter in a specially constructed apparatus. By subtracting a definite figure corresponding to other oxidizable substances in the urine and by consulting a table with due regard to the temperature and atmospheric pressure, the percentage of sugar can be readily determined with considerable accuracy.

Influence of Trauma in Movable Kidney.—Among the many etiological factors in the production of this condition, trauma has been assigned an important place. M. L. Harris (Jour. Am. Med. Ass'n., Feb. 13, 1904) has examined a large number of cases of railroad injuries, and among about 1,300 there were 41 instances in which this question arose. In about one-half there was a characteristic form of the body with contraction of the middle zone, which the author believes is an important element. After a careful analysis of these cases, he concludes that not in a single one was it certain or

probable that the kidney was made movable by the accident. Movable kidneys occur in women with a particular body form and practically all who possess this have movable kidneys to a greater or less degree. The author also believes that movable kidney is not produced immediately, but requires time for its development. While it is possible to injure, crush or suddenly displace by violence a normally fixed kidney, such displacement is always accompanied by a laceration of the perineal tissues, which is manifested by distinct local and general symptoms. Severe injuries of this kind are seldom or never followed by movable kidneys. Finally, a movable kidney is never the result of a single trauma.

Tendon Reflexes in Uremia.—Although uremia has been pretty thoroughly studied, no great attention has been given to the condition of the reflexes in reference to the diagnostic significance of the excess of excitability, which is undoubtedly present to a remarkable degree. W. M. Stevens (Brit. Med. Jour., Jan. 16, 1904) states that his attention was first directed to the subject by seeing a patient suffering from well-marked uremic coma, present, besides exaggerated knee-jerks, ankle-clonus, knee-clonus, wrist-jerk and elbow-jerk. Although these reflexes are not by any means always present in uremia, the symptom is common and under certain circumstances, it may prove of diagnostic value. In differentiating cerebral hemorrhage, which may begin with a convulsion and may be unassociated with any evident paralysis, and which not infrequently is the result of granular kidney in which case the information obtained from the urinalysis is defective, the author believes that an examination of the deep reflexes might often prove of much assistance, for if one found exaggerated knee-jerks and ankle-clonus with perhaps other signs of great myotatic irritability, a diagnosis might be made. An absence of the signs, however, should not negative the affection. In certain convulsive attacks such as epilepsy, there may be difficulty in differentiating uremia. Here again the exaggeration of deep reflexes may prove helpful. Bevor has pointed out that immediately after epileptics fits, the deep reflexes may be exaggerated. his condition, however, lasts but a few moments, whereas in uremia, if present, it is apt to be permanent. Furthermore, the presence of deep tendon reflexes may be of great service in prognosticating the advent of uremia if they are found present in a case suffering from dyspnea, sleeplessness, headache, vertigo and vomiting, and enable one to forestall the attack.

Physiological Albuminuria.—The question of the importance of hyaline casts and of albumin appearing in the urine of apparently normal and healthy persons is one deserving of the keenest and most careful consideration. Samuel West (Lancet, Jan. 16, 1904) states that cases of albuminuria fall into two groups, depending upon whether the cause lies in the kidney itself or not. In the latter case the cause may be found in the heart or in abnormal conditions of the circulation, in blood changes or other general conditions. In a third group of cases, the urine is normal when secreted, the albumin being added to it as it passes from the kidney to the exterior. Statistics showing the frequency of albuminuria in the apparently healthy differ very widely, the out-patient practice yielding a percentage of from one to three. In conclusion the subject is summed up by the author as follows: (1) Albuminuria may occur as a transitory symptom in persons who, except for this symptom, may be judged to be perfectly healthy, for they appear to be so at the time and remain so. (2) But it may also occur in persons who, though they appear at the time to be healthy, develop signs of disease subsequently. (3) It is difficult to distinguish at a given time between those who will remain well and those who will not. (4) It is difficult to exclude for certain many of the pathological causes to which the albumin might be due. In other words, though there may be no proof that these causes are present, there is equally no proof that they are absent and in some cases the result shows that they were not absent. (5) Speaking generally, the larger the amount of albumin in the urine and the longer it persists the greater the probability of some permanent disease. (6) Continued observation of these cases shows that the so-called physiological albuminuria does very appreciably increase the risk of life, and that this risk grows rapidly with every year of age after thirty years.

Chronic Cyanotic Polycythemia, with Enlarged Spleen.—The chief symptoms of this little known condition are constipation, headache, vertigo and weakness, although good health is not by any means incompatible with a very intense cyanosis. William Osler (Brit. Med. Jour., Jan. 16, 1904) reports that he has been able to collect from the literature six cases in addition to the three which he presented at the meeting of the Association of American Physicians in May, 1903. Six were males and three females; the youngest was thirty-five years of age. The cyanosis was a most remarkable feature without any dyspnea and without obvious cause. The blood viscidity was greatly increased, unusually dark in color, and in eight of the cases, the red blood cells were above nine millions to the cubic centimeter. The hemoglobin ranged from 120 to 150, the leucocytes showing no special changes. In seven of the nine cases the spleen was enlarged, in four reaching nearly to the navel. In five of the cases pigmentation of the skin was marked. There were necropsies in three of the cases. In Cabot's case the patient died comatose with cerebral hemorrhage. In Stockton's case, the heart was normal, there was moderate emphysema of the lungs and splenic enlargement. In Saunby and Russell's case there was hypertrophy of the left vessel and great enlargement of the spleen. The possibility of the condition being due to miliary tuberculosis of the spleen has been suggested by Rosengarten. Cyanosis and polycythemia are met with in primary tuberculosis of the spleen, but it does not seem at all likely that the cases of cyanotic polycythemia are due to this cause. This belief is substantiated by the results of three autopsies in which no mention is made of caseous masses or miliary tubercles in the enlarged spleen, and moreover, the chronic course—eight or ten years in some cases—is opposed to it. It is important in studying cases of obscure cyanosis to bear in mind the possibility of chronic poisoning with the coal-tar products.

SURGERY.

An Early Symptom of Severe Appendicitis.—There is no absolute symptom which will differentiate mild from severe cases of appendicitis during the onset, hence early operation in all cases is coming more and more in favor. L. Moszkowicz (Münch. med. Woch., Jan. 26, 1904) draws attention to the fact that the serious cases are generally characterized by the presence of a serous effusion in the abdomen. If all cases be systematically examined for fluid, it may be possible to divide them into those which require operation at once, and into those where delay does not matter. The best way to determine fluid is to place the left index-finger and thumb, spread apart as far as possible, upon the abdomen, and to percuss with the right middle finger upon the former, gradually approaching it to the thumb.

Operative Treatment of Tumors of the Nasopharynx.—This subject is fully discussed by E. Payr (Archiv f. klin. Chir., Vol. 72, No. 2), who presents the following conclusions: He believes that Kocher's method, which includes the osteoplastic resec-

tion of both superior maxillæ, offers the most complete exposure of the nasopharyngeal space, and is superior to the preliminary operations formerly practised. Such a complete exposure of the operative field offers the best chance for the radical removal of the growth, particularly if the latter be malignant. The technic of the procedure is not particularly difficult, when compared with the nasal, maxillary and temporal methods formerly practised. One of the great advantages is the slight degree of disfigurement caused. The functions of the parts involved are also very little disturbed. Patients usually stand the operation well and the dangers from hemorrhage and aspiration may, with proper precautions, be reduced to a minimum. He recommends that the operation be done with the patient's body at an angle of forty-five degrees, and the head allowed to hang over the upper edge of the table. Preliminary tracheotomy and the preventive ligature of both external carotids then become unnecessary. The author also suggests that where the choice of an operation depends on the vascularity of a nasopharyngeal polyp, the examination should be conducted with the head hanging down. The modified position has been used by the author with great success, not only in this, but also in other operative procedures in the nose, mouth or pharynx.

Relief of Various Forms of Hernia.—According to O. Horwitz (Proceed. of Phil. County Med. Soc., Jan. 30, 1904), the safety of the patient, as well as the lowering of the mortality in strangulated hernia depends on gentle taxis being exerted for a short period, which, if unsuccessful, should be succeeded by an immediate operation. Herniotomy in the aged is not a dangerous operation, provided it is performed as soon after the constriction has taken place as possible. An inflamed hernia should not be treated by taxis, but by operation. No one method of attempted radical cure is applicable to every variety of rupture. The Bassini is suitable to the largest majority; the Bloodgood for those in whom a large abdominal ring and weak or atrophied conjoined tendon exist. The relief of special forms and conditions must be met by the ingenuity of the surgeon. The palliative operation is applicable to a large number of selected cases of reducible hernia, when the protrusion cannot be kept within the abdominal cavity by means of a truss, and also in some cases of incarcerated hernia. A radical cure may be safely attempted on patients who have reached their sixth year, and on those who have arrived at their sixtieth. Individuals who submit to the palliative operation should continue to wear a truss after recovery. In cases not applicable to a routine method, the best means of removing the entire neck of the sac on a level of the parietal peritoneum should be used. Then the opening in the peritoneum must be firmly closed, the depression of the peritoneum in the vicinity of the internal abdominal ring obliterated, the structures brought into apposition, and the apertures closed which form the canal through which the rupture protrudes. An aseptic result is necessary for a permanent cure. In cases of undescended testis, every effort should be made to save the organ. The method of operating for umbilical hernia, suggested by Mayo, is probably the most satisfactory. Absorbable sutures are preferable in all cases.

Gall-bladder Surgery.—It had seemed from the recent publications of Kehr and of others that one of the greatest advances in surgical technic was the extirpation rather than the simple drainage of the gall-bladder. This conviction will be rudely shaken by an article of Maurice H. Richardson (Bost. Med. and Surg. Jour., Feb. 11, 1904), which might almost be called "cholecystostomy vs. cholecystectomy." The paper is based on 200 operations, and many additional observations. As regards the dangers of the two operations, the author is of the opinion that in unchanged or in slightly changed gall-bladders, they may, in the hands of experienced operators, be considered very slight; on the other hand, in the case of thickened, contracted, adherent, gall-bladders, the dangers of either operation are very considerable. Leaving aside the element of danger, then, which perfection in technic tends to render more and more equal, the operations may be compared as to their immediate and remote effects. Richardson is of the opinion that "drainage of the biliary passages is the one great benefit to be gained by the operation on the biliary passages, whatever may be the lesion for which the operation is undertaken." If now, the gall-bladder be excised, drainage must be performed through the hepatic duct. This necessitates a far larger incision and longer operation, a much less copious drainage, and imperils the subsequent integrity of the ducts through the danger of ulceration, necrosis and cicatrization. It seems logical to conclude, therefore, that cholecystostomy is preferable to extirpation. As regards the remote effects, the chief question to be considered is that of reformation of stones in the diseased gall-bladder. The author is firmly of the opinion that stones are practically always formed in the gall-bladder and never in the intrahepatic ducts; it is a tempting prospect, therefore, to remove the *fons et origo mali.* Clinical experience, however, has taught him that only in the rarest instances are gall-stones reformed either in the bladder or the duct after cholecystostomy followed by a period of drainage. The argument seems, therefore, overwhelming in favor of cholecystostomy, and against extirpation.

Genito-urinary Tuberculosis.—Honesty and thoroughness are the earmarks of the work done in the Johns Hopkins Clinics, and these qualities are conspicuous in a recent article on genito-urinary tuberculosis by Guy L. Hunner, assistant in the Hospital to Prof. Kelly (Bull. Johns Hopkins Hosp., Jan., 1904). The report is based on 35 cases, all of which were operated on. The average age of the patients was 31½ years, showing that the disease is one of young adults. The previous history revealed that four of the cases had had earlier symptoms of tuberculosis in other regions—joints, glands, abdomen, or lungs. Within the genito-urinary tract itself the infection is generally primary in the kidneys, as shown by the clinical and pathological findings. Nevertheless, it is a striking fact that in fully one-half of the cases the earliest characteristic symptoms are produced by the bladder, owing to the secondary infection of that viscus. The disturbances and symptoms due to tuberculosis of the kidney when confined to that organ are generally vague and difficult to recognize. The disease may easily be confused with malaria or typhoid, on account of the general symptoms and the temperature curve, or with appendicitis, gall-stone colic, movable kidney (Dietel's crises), and so forth, on account of the subjective symptoms. "Any symptoms referable to the urinary tract" may mask a true renal tuberculosis. The diagnosis depends on the palpation of the enlarged kidney through the abdomen, and of the thickened and tender ureters through the vagina. It may be completed by a cystoscopic and bacteriological diagnosis. Opposed to the difficulty in diagnosis, is the comparative ease in treating the cases, provided they present themselves early enough. The entire problem for the surgeon is the extirpation of the infected tissue—kidney, perhaps ureter, or even part of the bladder. The fact that the disease is generally primary in the kidney, and is in the vast majority of cases localized to one side tends to make this effort quite feasible, and gives a good

prognosis for radical operations, as is demonstrated by the records of the cases treated at Johns Hopkins.

Partial Enterocele.—This condition is as interesting as it is rare. Its etiology is still undetermined. Whether it begins from a false diverticulum or always acutely, as in accidental strangulation of some portion of the wall of the small intestine, is an unsettled question. Lucius W. Hotchkiss (Ann. of Surg., Feb., 1904) states that it is a form of strangulated hernia which is most dangerous because of the absence of typical symptoms. The hernial sac is generally small; its contents, a portion of intestinal wall or, rarely, omentum. Under the typical conditions of small aperture and unyielding margins, the strangulated portion of the gut wall soon loses its vitality, and perforation and peritonitis may ensue before the case assumes characteristic evidences of gravity. Although occasionally a typical hernia may have existed, most frequently the lesion consists in a very small, often unnoticed swelling which after an unusual exertion becomes painful. There can of course be no intestinal obstruction in the early and dangerous portion of the disease Pathologically it is usually characterized by involvement of that portion of the gut which is opposite the mesenteric attachment Adhesions between the gut and the neck of the sac protect the general peritoneum for a short time, but this barrier to peritonitis is extremely frail. The author then reviews six cases to illustrate the lack of uniformity in the symptoms and the absence of any single pathognomonic sign for early diagnosis, and, finally, the great disproportion between the severity of the earlier symptoms and the real gravity of the case.

Results of Oophorectomy for Mammary Carcinoma.—Although a well-known surgeon has said that he had not the courage nor the faith to propose this operation for inoperable mammary carcinoma, the results of its employment appear to justify the belief that he was in error. G. E. Herman (Lancet, Jan. 16, 1904) recites the recent history of a case which was published in the Lancet six years ago. The carcinoma under discussion was removed in 1890. At the end of 1896 it had recurred, invading the axilla and neck so extensively as to be absolutely inoperable. In 1897 the ovaries were removed. Six months later none of the recurrent growth could be felt. The patient remained in good health for four years when she began to develop repeated sweats and low-grade temperature manifestations. A month later she had an attack of pain in the left kidney so severe as to necessitate the use of morphine Shortly after this she began to suffer from epigastric pain after taking food, vomiting commenced and her feet became edematous. There was no albumin in the urine, nor fluid in the abdominal cavity. Three months later a little blood was present in the urine. Dyspnea became marked, retention of urine subvened and the patient died shortly after. No autopsy was made, but there can be no doubt that she died of recurrent abdominal carcinoma. Whatever criticisms may be made upon the technic of oophorectomy in these cases, it is self-evident that through its agency this woman was granted 4½ years of active and healthful life. The cases in which, up to 1900, oophorectomy has been performed have been collaborated by Stanly Boyd. The broad result which they show is that in about one-third of the cases the patient obtained "more or less marked benefit." This benefit consisting of retrogression of the cancer and a period of a few months or years of good health. This is too much to be accounted for by chance. The objections urged against the operation are three: (1) The immediate risk to life. This, in competent hands, is exceedingly small. (2) The temporary suffering caused by the operation. This is not, however, to be compared with the possibilities of ultimate benefit. (3) The effect of removal of the ovaries on certain functions. This, in the case of a patient doomed to die from carcinoma at no very distant date, is not worth considering. As opposed to these objections the patient can faithfully be told that there is one chance in three that the disease will retrogress and that she will have some months or perhaps some years of good health. It seems highly probable that the future of the operation is assured.

PHYSIOLOGY.

Physiological Action and Solution Tension.—The efforts to attribute physiological action to physical rather than to chemical characteristics are strongly supported by the result obtained by A. P. Matthews (Amer. Jour. of Physiol., Feb. 1, 1904), who finds that the poisonous action of any salt is a function of both ions and varies inversely with the sum of the solution tensions of the ions, *i.e.*, with the decomposition tension of the salt. The physiological action of any ion or atom(?) is, hence, determined by its solution tension, or its affinity for its electrical charge. Mercury, silver and copper are poisonous because they part with their charges to the protoplasmic particles easily, thereby bringing about changes in the state of aggregation of the colloidal particles, and decomposition of the molecules, in other words, physical and chemical changes leading to movements, and so on.

The Physiology of Unstriated Muscle.—Of extreme interest in itself and in its general relation to the knowledge of the phenomena that underlie the vital manifestations of the contractile tissues, is the painstaking research pursued for many years by P. Schultz (Archiv f. Anat. u. Physiol., Nov. 27, 1903), and just completed. If the contraction-curve of smooth muscle, such as that from the frog's stomach, be studied, it will be found to graphically represent two processes, contraction and relaxation, both of which are active manifestations. The intensity and speed of the former are increased by increased strength of stimulus, rise of temperature, increased tension, and repetition of stimulus; they are diminished by fatigue, lowering of temperature and reduction of the strength of stimulus. In studying the variations to which the relaxation-phase of the muscle-curve is subject, the author finds that it consists of two parts: In raising the strength of the stimulus it is noticed that after the muscle has reached its height of contraction, the relaxation that follows is at first rapid, represented by a steep line, and then slow and gradual, represented by a line much longer and more inclined. These two stages of the relaxation were separately studied. They represent together antagonistic forces; the first corresponding to the effort of the muscle to return to the norm, the second corresponding to the effort of the muscle to keep up a portion of its contraction. The first would, therefore, be the real relaxation-phase. Its speed is increased by increased strength of stimulus, rise of temperature, increased tension, and overloading; and diminished by reduction of stimulus and of temperature. The second, gradual stage of the relaxation evidently represents a process inhibiting the first rapid stage. Moreover, the original contraction does not fully disappear; there is really left a remnant of the contraction, which is usually described as the condition of tonus. The incidence of this tonus depends upon two factors. First, there is neurogenic tonus, which is the influence normally exerted by the nerves on the visceral muscle. Second, there is a condition of muscular tone which is original in the muscle, which may be termed "substantive" tonus. This latter remains even after the former has been abolished by atropine poisoning. To this original tonic property of the muscle must be attributed the

second, slow, gradual stage of the relaxation-tracing. By means of small weights attached to the muscle for a long time, this tonus may be overcome, but greater weights applied for a long time bring it again into play. Even after the muscular tone has been abolished in the former case, if a maximal stimulus be applied, the muscle will contract and the original tonus will reappear. Similar stimuli applied after this evoke a stronger contraction. It appears that the purely physical phenomena of tension and shortening, through loading and unloading, are bound up with the physiological events associated with the contraction. With the condition of passive tonus the author contrasts the muscle contraction as an active phenomenon, which is bound up with the condition of neurogenic tonus.

The Esophagus in Deviations of the Vertebral Column.—It has been generally supposed that the position of the esophagus was more or less affected by scoliotic or kyphotic displacements of the vertebral column. W. Jawin (Archiv f. klin. Chir., Vol. 72, No. 2) has determined in a number of careful autopsy examinations that this is not always the case. He found that the aorta and other vessels which are attached to the column by their branches, closely follow the bendings of the same. The trachea is affected to a lesser degree. Where the esophagus lies behind trachea and the arch of the aorta it may be bent in the sagittal and frontal planes. Below the bifurcation it leaves the column and passes over the curvature (like the string of a bow). The exceptions are seen in those cases where the connective tissue lying back of the esophagus has become fixed and rigid owing to the action of a pathological process such as a pulmonary tuberculosis or a tuberculosis of the mediastinal glands.

NEUROLOGY AND PSYCHIATRY.

Permanent Cures of Jacksonian Epilepsy.—There were two cases of traumatic Jacksonian epilepsy reported in 1896 as cured by operation done five years previously, which have repeatedly figured as favorable cases in various statistics. A further report is now made by G. Englehart (Deut. med. Woch., Jan. 21, 1904), who states that one of the patients has remained cured to the present, twelve years after operation. The other patient had seizures at long intervals for three years, and was then free for two years. They then came on again and in two years became so severe and frequent that the patient was driven to suicide.

The Relation of Syphilis to Tabes.—An interesting communication on this subject is presented by F. Lesser (Berl. klin. Woch., Jan. 25, 1904), in which he protests against the theory that syphilis is the active agent in the production of this disease. In many cases the patient's statement is alone relied upon in taking the history. Syphilis is very widely distributed, and the same proportion of involved individuals would probably also be found among a series of pneumonia or tuberculous cases. He believes that a more definite anatomical basis should be gained by a sufficiently large number of autopsies in tabetic subjects. Absolute signs of a previous syphilitic infection may be difficult to demonstrate, but the investigation should determine, as far as possible (1) in what proportion of necropsies on tabetics well-marked anatomical evidences of syphilis are present, and (2) in what percentage of all autopsies done in persons over thirty-five years old syphilis can be demonstrated. A comparison of these percentages should lead to some conclusion. Among a series of 96 cases of tabes tabulated by the author, syphilis was definitely demonstrated at autopsy in 27 (=28 per cent.). Post mortems in all other cases over the age of thirty-five years showed syphilis to have been present in 9.5 per cent. This shows that there is a certain etiological relationship between tabes and syphilis in a certain proportion, but not in all cases, for it is by no means proven that every case of tabes was preceded by syphilis. In those cases where there is some connection with syphilis, the question remains whether the disease is directly a syphilitic one, and with what stage of the latter can it be compared? To the secondary and tertiary manifestations, as ordinarily considered, the author proposes the addition of a third class—interstitial inflammations or quaternary manifestations. The latter consist of interstitial proliferations and parenchymatous degenerations of the internal organs, which run a chronic course in the later years of the patient's life, never heal, and do not react to either mercury or iodine. He considers that in the majority of cases this stage succeeds the tertiary gummata, but as it does not cause any symptoms, remains undiscovered during life. The histological changes in tabes consist essentially in parenchymatous degeneration of the nervous elements of the posterior columns of the cord and proliferations of the connective tissue elements, the neuroglia. This interstitial inflammation may be considered the primary pathological process and corresponds closely with the manifestations of the quaternary syphilis already mentioned. The author believes that the various theories advanced against the syphilitic nature of tabes can be readily explained by accepting this proposition. These objections he discusses as follows: (1) It has been claimed that mercury and iodine are without therapeutic effect in tabes, whereas they exhibit a well-marked specific action in the presence of syphilitic lesions. As already shown, however, tabes is neither a secondary nor tertiary manifestation of syphilis, and it is known that the later interstitial inflammations which accompany the form designated as quaternary, are not influenced by either of these drugs. Clinically, however, it is almost impossible to decide in any given case whether the tertiary or quaternary form is present, and the effect of specific treatment should first be tried—in case it fails, to be immediately abandoned, as it otherwise produces harm. (2) In most cases of tabes no evidences of syphilitic disease of the skin or viscera can be detected, and conversely in uncommonly severe cases of syphilis no tabetic affection of the cord can be proven. He explains this by assuming that syphilis is a bacterial contagious disease, as apparently well supported by clinical and pathological evidence. This irritation governs the intensity as well as the intensity of the resulting reaction in the organism. The latter is most effective at the appearance of the secondary manifestations and weakest when the quaternary stage comes on. If the virulence of the infections again persists for a prolonged period, the secondary stage will be extended and the quaternary manifestations correspondingly delayed. For this reason the cases in which marked ulcerations are present, and where the virus remains too virulent to produce merely interstitial inflammation, remain free from tabes. And in those cases where quaternary symptoms appear and the virus is consequently diminished in power, are not afflicted with gummatous processes of the skin and internal organs. These facts are supported by clinical evidence, for the coincident appearance of tabes and tertiary manifestations are of the greatest rarity. In certain regions, moreover, where syphilis assumes a very virulent form, marked by ulcerations and destruction, tabes remains practically unknown. The author also found that in these sections, autopsies rarely disclose the presence of any quaternary evidences of syphilis. (3) Considering the great frequency of syphilis and the comparatively rare appearance of tabes, any connection between the two diseases has been doubted. This contention is not well founded, because we can only

consider tabes as a localization of the quaternary manifestations in the spinal cord. Assuming that among 100 cases of syphilis, tabes occurs only once, this does not deny the syphilitic nature of tabes, for among this same number of cases it may be found that a gumma of the elbow is only present in one. The disease is likely to appear in one than in many localities in its later manifestations. (4) It has been claimed that tabetics are subject to syphilitic infections, and are not immune. It is proven in numerous other instances, however, that persons which present tertiary symptoms may become reinfected and that the immunity against syphilis is a limited one. The delayed appearance of the quaternary symptoms renders the absence of immunity and consequent reinfection even more probable. (5) Finally it has been asserted that tabes is a localized rather than a systemic disease, and that this is contrary to the usually entertained conception of syphilis. Interstitial syphilitic lesions are characterized, however, by their predilection for certain localities in particular organs, in the liver, testis, tongue, and likewise the cord—in the latter instance in the posterior columns. Such manifestations in other organs are considered part of a systemic disease. Why not, he asks, in the spinal cord? Another interesting fact to which the author calls attention is the apparently close connection between tabes and aneurisms. Autopsies in the latter class of cases have demonstrated the presence of syphilis in about 26 per cent., usually in the form of the interstitial, quaternary manifestations. Moreover, among 96 cases of tabes, aneurisms were found in 18—about one to five. He concludes that both lesions are due to the same primary cause, the quaternary lesions of syphilis.

OBSTETRICS AND GYNECOLOGY.

Prolapse of the Placenta.—This condition, where the placenta is normally situated, is quite unusual, and the case reported by F. Kayser (Archiv f. Gyn., Vol. 70, No. 3) is, therefore, of interest. The patient had a markedly rachitic narrow pelvis, but at the first examination no other abnormal conditions were found. Later on another examination revealed the placenta at the os. Assuming that a placenta previa was present, combined version was performed, and the foot pulled down into the vulva. After a period of fifteen hours, during which there were practically no pains, the patient suddenly went into collapse. The cervix was then incised and extraction immediately completed—perforation being necessary in order to deliver the after-coming head. During this procedure the woman died. The uterus was found to be enormously distended with blood, and the autopsy showed that the placenta was normally attached at the fundus. This phenomenon in connection with prolapse of the placenta is very unusual, but serves as an indication of the necessity for immediate ending of the labor in cases of such character. He does not think that version is advisable, and believes that the delay in extracting the after-coming head was responsible for the extreme hemorrhage. The delivery should, therefore, be cranial, using forceps if necessary.

Statistics of Tubal Pregnancy.—Based on a series of 233 cases observed at the Charite in Berlin, E. Runge (Archiv f. Gyn., Vol. 70, No. 3) presents the following views as to the etiology, pathology and treatment of this condition. He thinks that the main etiological factor in the production of a tubal pregnancy is a chronic gonorrhea or a puerperium which has run a pathological course. Nulliparæ do not prove an exception to the process, however. A tubal pregnancy is often preceded by a period of greater or less sterility. Tubal abortions and rupture occur most commonly during the first three months of pregnancy. Operative interference need only be considered (1) when symptoms dangerous to life are present, (2) when there is a distinct increase in the size of the tumor, (3) when the general condition is getting worse or a resorption of the tumor does not take place, (4) when the temperature continues high. The best operative procedure is laparotomy, and drainage of the abdominal cavity should not be practised. Unless distintegration of the coagulated masses of blood has taken place, only those which can be readily reached should be removed. Interference should not be postponed until the fetus has reached a viable age. When hematoceles are present, they should be treated in a conservative manner. Operation is only indicated by particular conditions, and should be done by means of a posterior vaginal section. Laparotomy should be reserved for those cases where the tumor is very large or difficult of approach by the vaginal route.

EYE, EAR, NOSE AND THROAT.

Labyrinthine Suppuration.—An otitis media may spread to the internal ear by way of preformed passages or by new channels, but the most common route is either the fenestra rotunda or ovalis, according to E. P. Friedrich (Münch. med. Woch., Feb. 2, 1904). These orifices are normally protected, but it frequently happens that the operator unintentionally removes the plate of the stapes, or that this bone and the ligaments are completely destroyed by suppuration. The most common sites of artificial communication are the ampullary tubercle of the horizontal semicircular canal and the promontory. In all cases, however, an osteitis results, which spreads unevenly over the greater part of the labyrinth. Round-cell infiltrations are found upon the vestibular side of the stapes, and on the inner side of the membrane of the round window; later connective tissue with lime infiltration will be formed here. Ultimately the endolymphatic system will be invaded, but primary disease here is rare. All the cases observed died of suppurative meningitis, which is best explained by the communication between perilymphatic and subarachnoid spaces, through the aqueductus cochleæ. The sheaths of the acustic nerve may act in the same way, but the endolymphatic duct is of less importance, since the perilymphatic space is always diseased first. Sometimes the meningitis develops through the agency of an extradural abscess, when the labyrinthine caries brings about defects on the inner side of the organ.

THERAPEUTICS.

The Efficiency of Persodine in Phenol Poisoning and Intestinal Auto-intoxication.—The various inorganic sulphates have been administered per os in carbolic acid poisoning with the view of promoting the formation of a non-toxic sulpho-compound of phenol. G. Bufalini (Arch. Ital. de Biologie, Nov. 21, 1903), preparatory to his own investigations in reviewing the results of other experimenters, finds that Marfori has preferred the use of ammonium sulphate administered hypodermically, in order that the ammonia, instead of increasing the alkalinity of the blood, might be eliminated in the urine as urea. The author experimented instead with a substance known as persodine, and found in commerce in the form of small pastilles, which is merely a triturated mixture obtained from the solutions of persulphate of sodium and of ammonium by a special process. This was administered to rabbits hypodermically after a toxic dose of phenol had been given, with the result of overcoming this toxicity. The author alludes in this connection to the researches of Boix and Noe, who found that the prolonged administration of hyposulphite of soda does not attenuate the effect of intraperitoneal injections of phenol, and concluded that this result would

not justify the use of the former drug in cases of intestinal putrefaction, for which it is largely used. The author does not pretend to have proved absolutely the power of persodine as an antidote for phenol, but he claims that this substance, by facilitating the formation of sulpho-compounds, will prove valuable for the neutralization of intestinal toxins (phenol, indol and skatol), which are frequently the cause of serious troubles. Moreover, the alkaline persulphites are valuable aperients, improve the appetite and increase the weight.

New Galactagogue.—Some twenty years ago cotton seed was advocated for this purpose by a number of German observers. More recently Theo. Zlocisti (Berl. klin. Woch., February 1, 1904), has again taken up this subject and presents his clinical experiences. He administered the cotton-seed meal in a purified form and freed from the indigestible cellulose constituents, to twelve nursing women, who had an insufficient supply of breast milk. None of the patients manifested any objections to taking the substance, and no digestive disturbances were noted. The effects became noticeable in from three to four days after the administration was begun, after some 25 to 30 grams had been given. The quantity and quality of the milk was apparently increased, as the infants in question did not require any supplementary feeding. The breasts also increased in size and became distended; a diminution in the supply only occurred after the substance had been omitted for several days. During the later periods of lactation about double the quantity was required to produce the proper effect. This preparation is known as "lactagol," and the author considers that it is a very efficient aid when other hygienic measures fail.

Properties of Lily-of-the-Valley.—It is not desirable to substitute convallamarin for lily-of-the-valley, since D. Laigre (Rev. de Therap. Med. Chir., Nov. 15, 1903) has found that while the tonic action on the heart is about the same with both, the diuretic properties are in great part to be attributed to the fresh convallarin. Unfortunately the drug varies considerably in strength, depending upon the quality of material employed, the use of heat in the manufacture of the extract, and other unknown factors. It is for this reason that a constant pharmaceutical preparation in the form of the juice of the fresh plant is recommended. It contains 2.25 grams of convallamarin and 1.2 grams of convallarin per kilogram; possesses all the physiological properties of the plant itself, and may be employed in doses of 5 to 15 centigrams, gradually increasing by 5 centigrams.

A New Soap for Disinfection.—T. Westhoff (Therap. Monatsheft, Jan., 1904), believes that the only safe soaps for surgical use are those containing some gritty substance for mechanical disinfection. The reason why those on the market are so unsatisfactory is because they contain carbonate of lime, which, when viewed under the microscope, appears as large, irregular crystals with sharp projecting angles that are very apt to produce slight abrasions in which the germs can easily lodge. The new soap has for its base silicic acid which occurs in much finer subdivision and leaves the hands soft and smooth even after prolonged use. Other ingredients are sodium soap, wax, lanoline borax and stearine. Bacteriological examination gave a much greater freedom of germs than with other soaps, and a number of experiments with aniline dyes proved that the upper layers of the epidermis are indeed removed

Theocin as Diuretic.—Theocin or theophyllin and its salts forms a most interesting group of diuretics with purely renal action, and if used properly, must be regarded as a valuable addition to our patent drugs. L. Alkan and J. Arnheim (Therap. Monatsheft, Jan., 1904) can record a truly remarkable flow of urine in all dropsical conditions after the first few doses; it requires only a short time, however, for the renal cells to get accustomed to the drug and soon the same small amounts of urine as formerly are voided. If no other diuretics and cardiac stimulants are given, they will be much more effective than before. The following rules may be laid down: In chronic interstitial nephritis, a varying amount of functionating tissue is still present, especially in the protuberances of the surface. Here it is best to start diuresis with one or two daily doses of theocin and to give calomel or digitalis as soon as the embarrassed circulation is relieved. In general renal congestion, theocin would only increase the beginning parenchymatous degeneration of the cells, hence digitalis must be given first, to allow the cells to recover. In acute inflammations of the kidneys, theocin is decidedly contraindicated. The usual dose is 5 grains every two hours for 3 or 4 doses.

Treatment of Typhoid with Serum.—At the present day, when the most sanguine articles on serum treatment of disease alternate with equally pessimistic ones, a sober, critical article, such as that of D. Du Mesnil De Rochemont (Therap. Monatsheft, Jan., 1904), is doubly welcome. The serum of Jezz, obtained from thymus, spleen, bone-marrow, brain and spinal cord of strongly immunized rabbits was employed, since there is every reason to believe that the antibodies are produced in these organs. Wonderful cures cannot be reported, but the author thinks that in every case the course was modified and rendered milder, though not shortened. The fact that typhoid germs could be cultivated from the blood and that a relapse occurred after large doses had already been given, speaks against a strong bactericidal action. Further tests are, however, necessary, especially in epidemics of varying severity.

Ninety Million Dollars for Typhoid Fever.—In his address on the Water Supply of Cities before the Michigan Municipal League, Dr. Victor C. Vaughan, dean of the medical department of the University of Michigan, pointed out the loss to the country every year from typhoid fever. "There die in this country every year," he said, "from typhoid fever alone not less than fifty thousand people. There are sick in this country not less than five hundred thousand people from this same cause. To get down to dollars and cents, which is the American way of figuring everything, say each man is worth one thousand dollars—and it was estimated in the days of slavery that a man was worth one thousand dollars. It is estimated also that it costs on an average, one thousand dollars to bring a child from the cradle down to the time that he is able to support himself. Say that the average human life is worth a thousand dollars. Then with fifty thousand deaths from this disease, we are losing by death alone, fifty millions of dollars. But there are five hundred thousand people sick. Then we will say that the time of each one of these individuals is worth a dollar a day. Besides that there must be at least one nurse, and we will suppose that these services are worth one dollar a day. Then for each day that those five hundred thousand people are sick, the people of the United States are paying one million dollars. And forty days is certainly an average duration for typhoid fever. Then, with this forty million and the fifty millions loss by death, it is interesting to note that the people of the United States are paying a tribute of ninety million dollars to our ignorance for the existence of a disease which, if every man did his duty, would not exist at all."

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SATURDAY, MARCH 12, 1904.

KALK METASTASEN.

It is perhaps a reminiscence of the alchemistic tradition in medicine which ever and again directs the researches of the physiological chemists to the discovery of some vital or essential salts in the body. At one time, quite late indeed in the nineteenth century, phosphorus had become all important: "Ohne Phosphor kein Gedanke," said the German brain physiologists of that day. Still later, iodine usurped the dignity, and pharmaceutical "iodo-" preparations of every variety became legalized. But the most important and interesting phase of this problem has been opened up by the recent investigations and theories of Prof. Jacques Loeb and his pupils, which are too well known to need rehearsal.

Amid the flux and reflux of opinion certain facts stand out with increasing definiteness, and of these not the least remarkable is the significance of the calcium salts in the animal economy. They circulate in the blood; according to an accepted theory they play an essential part in the clotting of that fluid; they enter into the reaction which results in the formation of the acid of the gastric juice; and, finally, in the more subtle vital relations investigated by Loeb they have been found to possess most powerful and peculiar properties.

To the clinician they appear under a variety of forms, chiefly as calculi, or as a part of calculi, in the gall or urinary bladder, and also as the offender in the arteriosclerotic processes of the body. Virchow long ago appreciated the importance of calcium in pathological processes; indeed, one of the most interesting of the many generalizations which he founded was that of the calcium equilibrium, from the pathologist's standpoint, in the human body. This led him to the theory of "Kalk Metastasen," since he observed that in cases of certain forms of bone disease, *e.g.*, tumor, which induced a large amount of bone rarefaction and absorption, calcium salts were laid down in certain viscera of the body which, except under such conditions, practically remained free from them; for example, stomach and lungs.

As may be imagined, this theory has not failed in the course of years to awaken opposition, which has, however, been rather timidly expressed. In the last number of the *Journal of Pathology and Bacteriology* there is a very full and detailed consideration of the whole question by Beer, based both upon the previous literature and much original material. From this article it would seem impossible to avoid the conclusion that "Kalk Metastasen" in Virchow's sense, do not really exist. In other words, the deposition of calcium would seem to be governed by some other factor than its mere excess in circulation. Weigert, it will be remembered, held that lime deposits were caused by purely local conditions, such as low vitality of the tissues. Again, it has been suggested that there is a calcium diathesis, like the supposed uric acid diathesis of the gouty. Be this as it may, the fact remains that the entire problem well deserves to be investigated and ventilated afresh, from a modern standpoint and with modern methods, and this is a work in which physiologists and chemists may share, and from which they may also expect to reap large benefits.

THE EOSINOPHILIC LEUCOCYTE IN SEPTIC INFECTIONS.

Ever since blood examination has become a routine measure in the clinical laboratory the expectation has been general that the diagnosis of obscure septic conditions would some time be rendered less difficult through the discovery of some characteristic factor.

For a number of years an increased leucocyte count was viewed in this light, but very soon it was learned that septic conditions could occur in which the actual number of the leucocytes was

not increased, and that even normally the total number could vary within fairly wide limits. Hyperleucocytosis, to be sure, was the rule, but the surgeons especially were not infrequently confronted with normal and even subnormal counts where operation could definitely prove the existence of suppurative processes. For a while the literature on the value of blood examination in the diagnosis of septic conditions abounded in polemical expositions, in which, on the part of certain surgeons especially, there was very little manifestation of graceful courtesy, and less of laboratory education. It was calmly suggested that the laboratory worker had no place at the bedside.

And what is the result of the strife? The laboratory worker still counts the leucocytes of the patients, but he does more. He makes a differential count, and with the introduction of the differential count a new factor becomes apparent in septic conditions. It is now ascertained that in all septic conditions there is an increased percentage of polynuclear neutrophilic elements and that the mononuclear leucocytes are relatively decreased. The recognition of this fact marks a distinct advance in the clinical value of blood examinations, as the relative increase of the polynuclear neutrophiles is manifest even in those septic conditions in which there is no actual increase of the total number of the leucocytes.

The increase of the polynuclear neutrophiles, however, is at times but little above the maximum normal, so that doubts can still arise whether or not a septic condition exists. An advance beyond this point has thus far not been made. This is peculiar in view of the fact that every laboratory worker must surely have noted the constancy with which the eosinophiles are diminished or absent in all septic conditions, using the term in the widest sense of its meaning. The text-books on hematology are silent on the significance of this fact; the diminution of the eosinophiles is noted, but is not commented upon. In the past the *increase* of the eosinophiles in various pathological conditions has received the attention of the laboratory worker but not their decrease. For the future we should urge the recognition of the undoubted fact that in all septic conditions whether associated with an increase of the total number of the leucocytes beyond the normal, or not, there goes hand in hand with a more or less marked relative increase of the polynuclear neutrophiles a distinct relative decrease of the eosinophiles, if indeed they are not absent altogether. So far as infection with the common pus organisms is concerned, viz., the various staphylococci, and streptococci, as also with the pneumococcus, the typhoid bacillus and the diphtheria bacillus, this rule is without exception. We should urge upon the surgeons the recognition of this fact and can then hope that in the future normal appendices are removed less frequently than is now unfortunately the case. On the other hand, we should emphasize the necessity of the differential leucocyte count by the general practitioner in all obscure cases of abdominal pain.

SOME FACTS ABOUT COLLEGE ATHLETICS.

IF one were in quest of a refutation of the oft repeated fallacy that college athletics were injurious to the participants; that such strenuous efforts on the part of the flower of our youth tended to diminish their intellectual vigor and brutalized them; that the great expenditure of nervous force and energy exhausted these young athletes and rendered them unfit for their life-work; or that they prematurely die of heart disease or consumption, one has simply to go over a recent article by Dr. George L. Meylan, new director of the Columbia Gymnasium, contributed to the *Harvard Graduates' Magazine* on Harvard University oarsmen.

In dire prognostications relative to these evils and the fostering effects of college athletics too often has the solitary swallow been made to bear the whole burden of a summer's rhapsody. The isolated examples of early death have been quoted as "I told you so's" by many physicians who have never had presented for their consideration any series of observations of sufficient breadth to warrant any conclusions. We as physicians should be the last to countenance college athletics if it can be shown that they uniformly work injuriously, but apart from the well-known tendency in some directions, to develop excessively along isolated lines, the medical point of view has coincided with the conclusions reached in Dr. Meylan's studies.

Having been led to an investigation of the subject by the asservation of a former Harvard oarsman that all the men who had been in his boat had died young, Dr. Meylan went over the records and found that the former oarsman suffered very severely from a bad memory and that instead of premature deaths among Harvard oarsmen excellent longevity and an increased expectation of life was the rule. Rowing has al-

ways been considered one of the best of the forms of athletic exercises, and in passing we would like to suggest to Dr. Meylan that he make a similar study for track athletics, a form of exercise, especially in the short runs, that is viewed with suspicion by even the broadest of your cult.

As to results: From 1852 to 1892, 152 different men were on record as having rowed on the Harvard Varsity crew, 123 were living, nearly all of whom were personally seen by Dr. Meylan. Thirty-two races had been rowed, with crews of 4, 6 and 8. The average age of these rowers was twenty years. In order to arrive at some standard of comparison the expectation of life tables of our large insurance companies were consulted and these showed that the total number of years of life of these oarsmen was 346.08 as compared with 337.6 the number that they might be expected to live.

Dr. Meylan then presents an extensive table including all the oarsmen and comes to the conclusion that Harvard oarsmen do not die prematurely and that they live longer than healthy men accepted by life insurance companies.

Referring to the causes of death in 32 oarsmen he finds that 6 were killed in the Civil War, one was run over by a railroad engine, and another met his death in a carriage accident, 2 died of heart disease, 3 of pneumonia, 2 of apoplexy, 2 of paresis, 1 of cancer, 1 of phthisis, 2 of Bright's, 1 of alcoholism and 1 of tropical climate. In ten the cause of death could not be ascertained with definiteness, but direct relationship of athletics to the death could not be traced.

It is interesting that of the survivors not one has made a failure in life. Five only occupy subordinate positions, the names of the rest are to be found among the most noteworthy of this country's citizens. At least ten per cent., who have been out of college fifteen years, are to be found among the list of eminent men. Certainly a sufficient refutation on the "brutalizing" tendencies of college athletics.

We would welcome other studies of selected groups that our notions concerning college athletics might be furbished and put in order, as this paper of Dr. Meylan's has contributed to do for rowing at our oldest American university.

Eastern Medical Library Opening.—The Eastern Medical Society of the City of New York opened its library and club-rooms in Clinton Hall, 151 Clinton street, last Tuesday evening. Addresses were delivered by Dr. Abraham Jacobi, ex-Justice Julius M. Mayer, Dr. Kenneth W. Millican, and Dr. Joseph D. Bryant.

ECHOES AND NEWS.

NEW YORK.

Medical Association of Greater New York.—The next regular monthly meeting will take place Monday, March 14, at the Academy. The following program has been announced: (1) Observations on Dilatation of the Stomach and on Gastroptosis, by Robert Coleman Kemp, M.D.; (2) The Consultant's Point of View, by William H. Thomson, M.D.; (3) Gastro-diaphany (Trans-illumination of the Stomach), by Max Einhorn, M.D.; (4) Dilatation of the Stomach, by George R. Lockwood, M.D.; (5) Gastroptosis, by Achilles Rose, M.D.; (6) The Surgeon's Point of View, by Robert H. M. Dawbarn, M.D., and George E. Brewer, M.D.; (7) Relation of X-ray and Radio-active Solutions to Examination of the Stomach, by Sinclair Tousey.

Site for Bellevue Training School.—The Bellevue Training School for Nurses has bought, for about $50,000, the property, 423 to 431 East Twenty-fifth street, a plot 125 by 100, and will erect thereon a six or seven story building to be used as a training school and nurses' home. The school heretofore has been quartered in some three and four-story buildings on Twenty-sixth street immediately at the rear of the site just purchased. These old structures will be used in connection with the new building, and it is said that the latter may eventually be extended over the entire property.

New York Academy of Medicine.—The Section on Medicine will meet next Tuesday evening, March 15, at Nos. 17-21 West Forty-third street. The following is the program: (1) Presentation of Cases and Specimens: Trichinosis, by Wm. B. Noyes, M.D.; (2) Clinical Reports: Two Cases of Cerebrospinal Meningitis Cured by Intraspinal Injection of Lysol, by Morris Manges, M.D.; (3) Papers: (*a*) Feeding in Tuberculosis, by John B. Huber, M.D.; (*b*) On the Sanitary Surveillance of Tuberculosis in New York City; illustrated by exhibits prepared for the St. Louis Exposition, by Hermann M. Biggs, M.D.; (4) Discussion of papers.

Columbia University Notes.—The trustees of Columbia University, at their last regular meeting, approved the proposal to incorporate the College of Pharmacy on terms similar to those by which Barnard and Teachers' colleges became a part of Columbia some years ago. President Butler becomes president of the college, the dean of the College of Pharmacy will sit in the Columbia University council, and the educational management of the College of Pharmacy will be subject to the general direction of the University Council, the College of Pharmacy retaining much of its autonomy. Edwin B. Cragin, M.D., professor of obstetrics, was appointed professor of gynecology; Harry McMahon Painter, M.D., attending physician in the New York Lying-in Hospital, was appointed to the newly created professorship of clinical obstetrics; Gorham Bacon, M.D., now professor of otology in the Cornell University Medical School was made clinical professor of otology, vice Albert H. Buck resigned, and William K. Simpson, M.D., was made clinical professor of laryngology in place of Prof. Lefferts.

New St. Francis Hospital.—The Sisters of the Poor of St. Francis, who for thirty-eight years have conducted St. Francis' Hospital, in East Fifth street, are erecting a new hospital on the block bounded by One Hundred and Forty-second street, Brook avenue, One Hundred and Forty-third street, and St. Ann's avenue, directly opposite St. Joseph's Hos-

pital for Consumptives. There will be 19 large wards, giving space for 304 beds, and 40 small wards, a number of which will be used for private patients. In addition, there will be constructed a house for the sisters, 120 by 54 feet, the lower floors of which will contain the kitchens and store-rooms and a handsome chapel, 48 by 80 feet. There will also be a garden for the patients.

Immigration and Disease.—In a recent number of the *Popular Science Monthly*, Dr. Allan McLaughlin, of the U. S. Marine Hospital Service, discusses very forcefully the dangers to which Americans are subjected by the present lax methods of preventing diseased foreigners from taking up their abode among us. It has come to be pretty well known from the constant harping of certain newspapers and magazines that this country is being rapidly supplied with adventurers from foreign lands; but comparatively few citizens have anything to say about it save that we are a wonderful people and rightfully stand forth as the inhabitants of "the land of the free and the home of the brave." That fact satisfies their patriotism, and occasionally a man's patriotism obscures almost all of his other good traits. But the most potent reason against even promiscuous hospitality is the introduction of loathsome and dangerous diseases, such as trachoma and favus among a hitherto immune population. According to Dr. McLaughlin there has been a great deterioration in general physique among the foreigners who have come here since 1880. Previous to that time most of the immigrants hailed from the northern or western parts of Europe and belonged to the stocky, healthy Celtic or Scandinavian types. To-day the bulk come from the South and East and are in comparatively poor physical condition. The weakest are the Hebrews, of which about 70 in every 100 remain in or near New York. Then come the next in order, the Italians, who are so commonly found in our charity hospitals and asylums. Then the Slavs, the Irish and finally the Swedes and Norwegians, of whom only 18 per cent. take up their permanent residence in this city. As a prophylactic against the spread of infectious diseases by this method our Government has instituted an inspection of both steerage and cabin passengers, sending back all those physically unfit to land and fining the steamship companies $100 for each offense in allowing these objectionable ones to take passage. But, of course, there is Canada, and it is taking the best wit at our command to keep the border line from becoming the actual portal of entry for those sent back from New York. It would seem that not only the actual presence of disease, but a physique likely to soon give way under the stress of our climate should be equivalent to deportation. Or each applicant might be required to show a certain standard physique if between the ages of eighteen and forty-five years. Whatever is done ought to be put under way as soon as possible, for it is alarming how such diseases as trachoma and favus—both foreign to American soil—are spreading, especially among school children. In closing his article Dr. McLaughlin says, "If the thousands of recruits for the sweat-shop army could be checked for ten years the existing tenement-house problem would solve itself. The terrible congestion of the tenements would be relieved, the scale of wages for the sweat-shop worker would be elevated, and the general sanitary conditions of life on the lower East Side could be improved sufficiently to reduce the menace to public health from this cause to a minimum." This seems like a broad and sweeping generalization, but it is made by a man who knows what he is talking about.

New Mt. Sinai Hospital.—On March 15 the new Mount Sinai Hospital, at Fifth and Madison avenues and One Hundredth and One Hundred and First streets, will be opened to the public for inspection. Two days will be given over to the reception of visitors, namely, March 15 and 16. Aside from its liberal allowance of sunshine and air, unusual for such an institution in a large city, the hospital's size, considered in the light of the number of patients who can be treated within the walls of the various buildings, is perhaps its most striking and interesting feature. No fewer than 450 patients can be housed in the various wards at one time, which is more than any other hospital erected by private donations will hold. In addition there will be accommodations for 52 private patients. Scarcely less interesting are the opportunities provided to enable convalescents to recover their strength while still under the advice and treatment of the physicians of the hospital. In view of a lack of surrounding grounds a roof garden has been arranged for them, in which they can bask in the sunshine, and from which to the west they will obtain a splendid view of Central Park. Furthermore, adjoining the ward in which they are undergoing treatment will be a room where they can enjoy themselves in quiet games to the extent their returning vitality will allow. Although the new institution will be opened for inspection on the two dates mentioned, patients will not be admitted until the morning of March 21. Neither patients nor furniture will be moved from the old hospital to the new. Admissions to the old structure were stopped on Thursday last, but those who are being treated there will be allowed to remain until they have been nursed back to health. The entire group of new hospital buildings will have cost, when completed, $2,250,000. They will include the Administration Building, to which will be joined two buildings containing the medical wards, creating a structure which is really three in one. Then the group will comprise the Dispensary Building donated by the family of Meyer Lehman, the Nurses' Building, with accommodations for 160 nurses of the working corps; the Pathological Building, donated by Adolph Lewisohn; the Isolation Building, the Laundry and Kitchen Building, the Children's Pavilion, donated by Henry L. Einstein; the Private Pavilion, donated by the Guggenheim family, and one or two minor buildings. Of all the various interior innovations the Hydro-Therapeutic Pavilion is perhaps the most palatial. It is almost a complete house of marble, providing the opportunity for all sorts of baths prescribed by up-to-date physicians with the appurtenances therefor. The superintendence of the hospital will devolve upon Dr. S. S. Goldwater, who has made the superintendence of hospitals a special study. He was graduated from Bellevue Medical School in 1891. The corps of visiting physicians in the various departments will comprise: Consulting Physicians—Dr. E. J. Janeway and Dr. Abraham Jacobi; Consulting Surgeons—Dr. W. F. Fluhrer and Dr. D. M. Stimson; Attending Surgeons—Dr. A. G. Gerster and Dr. Howard Lilienthal; Adjunct Attending Surgeons—Dr. Charles A. Elsberg, Dr. A. A. Berg, Dr. Joseph Wiener and Dr. A. V. Moschcowitz; Attending Physicians—Dr. N. E. Brill, Dr. M. Manges, Dr. Alfred Meyers, Dr. J. Rudisch and Dr. H. Koplik (children); Adjunct Attending Physicians—Dr. H. W. Berg, Dr. D. H. Davison, Dr. E. Libman and Dr. Albert Kohn; Attending Eye Surgeon—Dr. E.

Gruening; Adjunct Attending Eye Surgeons—Dr. Carl Koller and Dr. Charles H. May; Attending Gynecologists—Dr. Joseph Brettauer and Dr. Florian King; Adjunct Attending Gynecologists—Dr. H. N. Vineberg and Dr. S. M. Brickner; Attending Neurologist—Dr. B. Sachs; Adjunct of the Neurologists' Department—Dr. W. H. Hirsch; Attending Dermatologist—Dr. L. Lustgarten; Adjunct Dermatologist—Dr. F. Leviseur; Radiographist—Dr. Walter M. Brickner; Assistant Radiographist—Dr. E. H. Eising; Attending Laryngologist—Dr. D. B. Delavan; Adjunct Attending Laryngologist—Dr. Emil Mayer.

PHILADELPHIA.

Operation by Dr. Ridlon.—A demonstration of the Lorenz method was given in the Jefferson Hospital March 1 by Dr. John Ridlon, of Chicago. The patient was a child of two years and the dislocation was reduced perfectly. At the same clinic were exhibited several patients operated upon last year by Dr. Lorenz and Dr. H. Augustus Wilson. Perfect cures seemed to have been attained in at least two of the cases.

Civic Club to Aid Fight Against Tuberculosis.—The Civic Club of Philadelphia gave up nearly all of its regular meeting March 5 to a consideration of methods for combating tuberculosis. The meeting was held in the College of Physicians and was addressed by Dr. Lawrence F. Flick, of the Phipps Institute. The Club proposes to aid in the movement against tuberculosis and other public organizations are expected to join. Efforts will be made to secure legislation to enforce preventive and curative measures and the erection of special hospitals.

New Sewer System to Prevent Typhoid.—The continued prevalence of typhoid fever, 195 cases having occurred during the past week, has caused the city authorities to consider plans for disposing of the sewage by means of the septic tank system. The plans contemplate the construction of large intercepting sewers along the Schuylkill and Delaware rivers, converging at a point near where the rivers meet. Here the plant for disposing of the sewage will be erected. If this project be carried out it will place Philadelphia in a position to legally attack the cities above its site for polluting the rivers.

Suture of the Heart.—A colored man, thirty years of age, was operated upon for a stab wound of the heart, at the Jefferson Hospital February 29, by Dr. Francis T. Stewart. The man walked some distance to the hospital after receiving the wound and was operated upon forty-five minutes after the injury was inflicted. The wound was found to be near the base of the left ventricle, the external opening being about one inch in length. This was closed by means of six sutures. The patient has since done fairly well with the exception of having a rapid pulse.

Biography of Dr. William Pepper.—The *New York Times Saturday Review of Books* for March 5 contains a very appreciative and highly commendatory review of Francis Newton Thorpe's life of William Pepper, M.D., LL.D., Provost of the University of Pennsylvania. The book is published by the Lippincotts of Philadelphia.

CHICAGO.

Gift to Augustana Hospital.—According to the will of the late Thomas G. Lowther, a sum of not less than $20,000 from the residue of the estate will be given to this hospital.

Chicago Medical Society.—At a meeting held March 2, 1904, there was a symposium on Syphilis. Dr. Hugh T. Patrick presented a woman, forty-one years of age, whose trouble dated back to 1899. He saw her in 1901 for the first time. She suffered from dizziness, failure of vision, intense headaches, considerable mental and physical hebetude. Following this she developed double vision, which lasted for a few months. Acuity of vision diminished rapidly, according to the statement of the patient. After having had this trouble for some time, she sustained a fall and was unconscious for a short time. When she regained consciousness she vomited. A month later she had another fall, and was also unconscious for a short time. During this time the severe headaches continued. After several months of these headaches, mental hebetude, double vision, and two unconscious attacks, she was removed to St. Luke's Hospital, and on the day following her arrival became unconscious, and remained so for twenty-four hours. She vomited just before she became unconscious. When she regained consciousness, everything looked blurred, and the left side was paralyzed. The arm became weak first, then the leg, and later the face became involved. With the left hemiplegia there was marked sensory disturbance; marked anesthesia, which continued for a considerable time. Two years after the attack, when patient had regained very good use of the left side, there was still considerable subjective trouble on that side, but very little objective. Patient uses the left hand for practical purposes, but it is not as dexterous as it was, and feels queer. She has complete homonymous hemianopia. The visual field is normal on one side, but gone on the other. As the result of her trouble, patient has permanent hemianopia, although she has nearly recovered from her left hemiplegia. Patient is absolutely ignorant of any specific infection. Dr. Patrick presented another case, a woman, twenty-one years of age, whose mother is at present suffering from tabes, with optic atrophy. The oldest child, a son, died about two years ago from general paresis. The next child, also a son, is at present suffering from tabes, with optic atrophy. Patient is the third and only remaining child, who, as an infant, had snuffles, and later developed mucous excrescences. Two and a half years ago she had a typical interstitial keratitis, but up to three years ago, aside from the trivial ailments of childhood, she was well. One day, while sitting on the step, she had a sort of stroke without loss of consciousness; became weak on one side, more especially in the face. The next morning she had another stroke which involved all of the right side. This attack was transient. A month later she had another attack of right hemiparesis which was a little more severe, and three months later a fourth attack, which was very severe, which left her completely hemiplegic on the right side with aphasia. First the face, then the arm and leg became involved. A year and a half ago, patient developed typical Jacksonian fits. These fits started with twitching and drawing in of the right side of the face, which extended to the arm, then to the leg, after which she had a general epileptic attack. Sometimes the spasm does not go so far. The face and arm may be convulsed, without loss of consciousness. Sometimes she has a severe attack which terminates in a general convulsion. Attention was called to the defective teeth of the patient. She also has a disseminated choroiditis. Patient showed unmistakable signs of hereditary syphilis, and Dr. Patrick said the question arose whether the two boys inherited syphilis or had it communicated to them as children. Either case was possible;

but the family showed the relation between specific disease, tabes and general paresis.

Dr. L. Blake Baldwin showed a Chinaman with syphilis. He had treated eleven cases of this disease in Chinamen. He brought the case for diagnosis. As it was difficult to get a history of such cases, he ventured to say that ninety per cent. of the cases of Chinamen who consulted physicians had this disease. With this thought in mind he has given all of them iodide of potassium with good results in most cases. When these patients presented themselves with facial paralysis, paralysis of the arm and leg, with large ulcerations on the leg, it was wise to give them iodide of potassium. The patient denied any initial lesion. Dr. Baldwin showed another case, a man, with a diagnosis of syphilis. Patient had a chancre eighteen years ago. He now had syphilitic iritis, but had improved considerably under the use of iodo-nucleoids. He mentioned a case similar to this that had made a perfect recovery. About five years ago this patient had a paralytic stroke on the left side, so that he was unable to move his fingers, but the paralysis lasted only half an hour. He also showed some cases of syphilitic lesions of the mouth. One patient had a chancre fourteen years ago, but no eruption on the body. Since that time patient had had two soft chancres about a year ago, which were cauterized by a physician.

Dr. Frederick Menge showed a boy, twelve years of age, who had hereditary syphilis. Patient had an active proliferating gumma in the nose, springing from the septum on both sides, filling the interior meatus and occluding both nostrils. He had also complete erosion of the uvula.

Dr. George F. Suker showed a boy who had a typical syphilitic head. He had the tripod of Hutchinson; interstitial keratitis, otitis media, and saddle nose. Patient also had syphilitic rhinitis; bilateral dacryocystitis; stenosis of the lacrimal duct. Patellar tendon reflex was not lost. Patient had what is called the Darier tooth; atrophy of the upper jaw and of the hard palate. Patient had had these affections since the second week of birth. Attention was called to the typical Hutchinson's teeth. The boy was a typical example of inherited syphilis.

Dr. E. A. Fischkin presented a patient who gave a history of having had a primary lesion some twelve years ago, the nature of which was not definitely known. Patient said he did not have secondary lesions, but did have mucous patches, and was free from other manifestations of syphilis for twelve years. Patient had been married five years, and had healthy children. About fourteen months ago purpuric spots began to appear on the lower extremities. Three months ago tubercles appeared on the side of the nose, which were circinate in form, gradually enlarged, and finally ulcerated. Patient was put on iodides and given inunction treatment. Soon the whole leg was covered with purpura, but the spots were closer together, particularly on the surface where the ointment was rubbed in. The question arose in the author's mind as to whether he was justified in calling the case purpuric syphilis, or was the purpura due to the toxic effect of the treatment. Against the latter, it should be said that the patient had purpura twelve weeks ago without treatment. The second case was a girl, fifteen years of age, who presented a typical tertiary, ulcerating syphilide on the leg. Patient also presented syphilitic scars of the type represented by atrophy and pigmentation. The history was entirely negative. The disease was of two years' duration. If she had acquired syphilis, the primary infection must have occurred when she was twelve or thirteen. There were a number of scars on the leg and a general adenopathy.

Dr. George F. Suker showed two cases of syphilitic iritis. In one the eye was very painful, while in the other there was no pain. One had a small corneal ulcer. This patient admitted having had syphilitic infection about a year ago, but now had the secondary manifestations of the disease, with marked adhesions of the iris, and excessive proliferation of the pigmentary layer of the posterior surface of the iris, with a large portion of the anterior surface of the capsule of the lense being involved. There was great reduction of sight, with pupillary adhesion. The corneal ulcer was situated toward the nasal side.

GENERAL.

Loss to Johns Hopkins Hospital.—By reason of the Baltimore fire the hospital has lost about $60,000 of annual income. This diminution of income must last at least two years, and possibly longer. This loss of income represents about a million and a quarter's worth of property which belonged to the hospital and was improved with warehouses and office buildings. The real estate of the hospital was scattered over a large territory, and the insurance of the property was not for total loss, but for the contingencies of ordinary fire. By reason of the fire 64 out of 80 warehouses were burned, and the actual loss of property beyond insurance is probably between three and four hundred thousand dollars. The loss of income, however, is much greater and much more permanent, because, in the great rebuilding it will probably not be wise to rebuild all the warehouses, and much real estate must necessarily lie idle. Under the circumstances the hospital authorities look forward to a considerable deficit for the next two years, unless some means can be devised for temporarily patching up the income.

Winter Weather and Public Health.—The *Times* speaks editorially of the severity of the weather during the past three months and of its influence on the general health as follows: "The most natural question to arise in the discussion of the severity of the past winter is its influence upon the public health. Outside of forms of disease attributed to the bacillus of influenza there is nothing in the current mortality statistics to attract especial attention. In other respects the public health is normal. Including these, the situation is extremely disquieting. The number of deaths occurring in New York city last week was greater than for any week of the winter season since the great grip epidemic of 1892-3. The number was 1,797, against 1,682 for the week preceding. Bronchitis and lobar pneumonia predominate among the causes certified by physicians in their reports of deaths, and the relatively small number of deaths assigned to influenza is explained by the fact that more exact diagnosis than was formerly possible permits of a more scientific classification. However, it is the grip microbe which is doing the work. Only a few years ago this specific bacillus was isolated and recognized, and in examinations of the sputa of patients in the hospitals suffering from diseases of the respiratory organs it is found in from 70 to 90 cases in the hundred. The infectious area is by no means strictly local. It exists actively in most of the nearby towns north, east, and south of New York, and in New Jersey is reported to have taken a somewhat distinctive type with the compli-

cation of swellings of the submaxillary glands. Public sanitation, with our present knowledge, can do but little to correct these conditions. The only effective safeguards will be found in prudence, and in the observance of avoidance of contact infection."

To Rid Mexico of Yellow Jack.—Dr. Owens, one of the Southern health officers who visited Mexico for the purpose of inducing that country to cooperate with the United States in getting rid of yellow fever on the frontier, declares that the Supreme Board of Health of Mexico will do all in its power, and is well provided with funds for that purpose. The most important sanitary work undertaken is that at Vera Cruz, which is regarded as the centre of yellow fever infection in Mexico. The Mexican board has at its disposal $7,000,000 for the work of rehabilitating Vera Cruz, which will be devoted to sewerage and drainage work. The town is divided into four districts, with a medical officer in charge of each. Each one of these medical officers has under him a large corps of sanitary inspectors. A thorough tour of inspection is made of all suspected or infected districts each day, and each evening a report is made of the number of cases in each district. Oil is being used freely. Marshes surround Vera Cruz, and every possible precaution is taken to diminish the number of mosquitoes coming from them.

Impure Water for Cities.—"Authoritative information from Cleveland," says the *Times*, which paper takes an advanced position in matters sanitary, "shows that city to be fighting a typhoid epidemic, already serious and daily gaining headway. It had attained the importance of 68 cases in one day on the first of the present month, and the official returns for February show 465 cases reported and 45 deaths. The water of Lake Erie is polluted. The Philadelphia *Ledger* reports Health Officer Abbott as announcing that in that city a sweeping typhoid epidemic is threatened, having reached the stage of 30 cases a day. In 1903 there were 8,000 cases of typhoid reported in the city. The Schuylkill is polluted. In probably twenty cities and towns the conditions which menace Cleveland and Philadelphia are now being dealt with in the crude way customary when the limited machinery of the local sanitary administration is taxed to the breaking point. Why is it that experience teaches communities so little in matters so intimately affecting the public health as drainage and water supply? The *Public Ledger* says of the conditions tributary to the present situation in Philadelphia: 'At the Shawmont pumping station great difficulty is being experienced in getting water, owing to the serious break at Flat Rock Dam. Centrifugal emergency pumps have been installed on the towpath, and dirty, slimy water is being pumped directly into the pool. On last Tuesday the water above the dam was 17 inches below the breast. Owing to the rain, the water rose 5 inches in the afternoon. As long as this break is unclosed, there will be little opportunity for the water to settle before being pumped from the river.' No doubt the average citizen reading this will shrug his shoulders and think how regrettable it is that such an accident should happen with consequences so serious. That he will do more than this is scarcely to be expected. One would suppose that the effect of such an announcement would be comparable to that of ringing a general fire alarm; but it is not, never was, and perhaps never will be. To create and sustain an intelligent public interest in matters affecting the public health is one of the most difficult of human undertakings."

An ex-Prisoner on Professional Criminals.—We quote with approbation the following from the *Nineteenth Century:* "During the period of my incarceration I conversed with some hundreds of prisoners belonging to what is known as the professional or habitual criminal class, those desperate, hardened, clever criminals of whom we hear and read so much. I got at these men's sentiments, ideas and feelings, and I believe I am safe in saying that in only two instances did I encounter prisoners whom I put down as utterly irreclaimable. As for the remainder, they were professional criminals simply because no other profession was open to them. To suggest, as some writers do, that these men are burglars, housebreakers, pickpockets or whatever it be, because they hanker after pursuing these occupations, is to my mind sheer nonsense. These men are professional criminals for very much the same reason as ninety-nine hundredths of the women who nightly patrol the streets of the metropolis are professional prostitutes—because their wills have been weak and circumstances have been too strong for them. To assert that these professional criminals are mere wild beasts, impossible of being brought back to the path of rectitude, is, to my thinking, not only absurd, but untrue. No one attempts the reclamation process either in jail or out of it. Once a man has worn a prison suit, the world, whatever may be its protestations to the contrary, tacitly declares him an outlaw, every man's hand is against him, he is a pariah, an outcast; and, unless he be a man of strong will and fierce determination, or has private means or friends to assist him, he almost naturally relapses into crime. It is, in fact, his only alternative, and the men he has met in prison are the only persons who will assist him. I confess I feel sick when I read the puling sentimentality which from time to time appears in reviews and newspapers anent the innate depravity of the criminal, knowing as I do the struggle, the almost hopeless struggle, the ex-prisoner has to make if he is to exist without infringing the law. No doubt there are prisoners' aid societies which receive and spend the vicarious charity of the public. These societies will, I know, receive the prisoner on his discharge and make him clearly understand that he is an ex-prisoner; they will dole him out the paltry gratuity he has earned in prison, and, if he wants anything else, they will employ him to chop wood or at some such congenial labor—at a profit to the society. These institutions may do excellent work for all I know, but the excellent work has not come under my notice. How they expend their funds has always been a mystery to me, because in not one solitary instance—and I have made hundreds of inquiries—have I been able to trace the fact of their having rendered efficient aid to any discharged prisoner."

In view of this criticism we would call attention to the following item concerning the report of the New York Prison Association Report.

Faulty Prison Systems.—The Prison Association of New York has just submitted to the legislature its fifty-ninth annual report. It is confined almost entirely to subjects which can only be remedied by legislative action. The whole report, which is signed by Charlton T. Lewis, chairman, and S. J. Barrows, corresponding secretary, is an elaborate argument in favor of the reorganization and unification of the prison system of the State. The necessity of considering the problem of crime as a whole is made evident, and State control is recommended for all persons convicted of violating the State laws. The enforced idleness of prisoners in county jails is deplored, as well as the system in some counties of paying sheriffs so much a day for each prisoner they keep. Remedies for the various abuses are suggested, and they can be effected, it is said, "with

comparative ease and with small expense." The report opens by saying that "every year makes it more and more evident that crime in this State can only be adequately treated by considering the problem as a whole," and continues as follows: "The criminal is actually in advance of the State in taking advantage of the changed conditions of modern life. While the State continues to treat crime as if it were a local matter, the criminal is anything but local in habitation or in his depredations. He skilfully avails himself of modern methods of transportation to change his habitation and his field of operations from place to place, in search of profit or safety. He has discovered that with uniform laws and uniform judicial procedure in the State, there is no uniform prison administration. In fact, there are in New York sixty-two prison systems—namely, one for the State and one for each of its sixty-one counties. The tramp or the vagrant chooses for a winter residence the county, where he can get the most comfort with the least work, turning the weakness of the system to his own advantage. In many other ways local control and divided responsibility defeat efficient discipline and uniform and economical administration. We beg leave to call your attention to some of the anomalies which point to the necessity of a reorganization and unification of our prison system.

"One of the most obvious lies in prison administration. Neither the State commissioner of prisons nor any other State authority exercises any control over discipline, treatment, feeding, education, or labor in county jails or county penitentiaries. This association visits and inspects them as does the State commission of prisons, but like that commission has no powers of control. The inspectors can do nothing to improve the conduct of local institutions or to remedy abuses, save by personal appeals to the sheriff, or to county parliament, the Board of Supervisors, to which he is responsible. There is, therefore, no uniformity in the condition or treatment of prisoners in the sixty-one counties except that uniform idleness prevails in the jails throughout the State.

"The present system—if a method so irregular can be called a system—is incongruous. The Penal Code is the same in all parts of the State, but there are glaring inequalities in the application of the penalty. The equality of duration in a punishment is one thing; but equality of condition quite another. A sentence of two years to such a prison as Sing Sing, especially with two men in a cell, is a far heavier penalty than the same term in a healthy modern prison. The county jails vary so much in condition that a month in one is worse than three months in another, so that the penalties imposed do not represent any uniformity in punishment or discipline. The county jails are notoriously unfit for the discipline and correction of convicted prisoners. Experience has shown that uniformity of standard and condition cannot be attained even under a uniform law for the counties when the law does not efficiently provide for its enforcement. There is hardly a sheriff or supervisor in the State who is not guilty of violating laws as conspicuously as are the prisoners under his charge. It is extremely difficult, indeed, for such officers to comply with some of the laws under local imitations. It is important to note that a large part of this difficulty has been created for the counties by the State itself. This is especially true in regard to prison labor.

"Before the passage of the Constitutional Amendment, which provides that prison-made goods shall not be sold in the open market, but only to the State or to political divisions thereof, four counties in the State maintained penitentiaries in which every prisoner except those physically disabled, had the mental, moral, and physical advantage of a full day's work, and these institutions were more than self-sustaining. The passage of the Constitutional Amendment destroyed the industries of these county penitentiaries. That the taxpayers of the counties are compelled to support in idleness several thousand able-bodied prisoners is a frightful anomaly of our Government; yet even this is of slight moment compared with the moral and physical evils which arise from keeping prisoners in enforced idleness. It is ten years since the Constitutional prohibition was adopted and seven years since it went into effect (January 1, 1899). If any one wishes to know the result of this prohibition in keeping men from productive labor, let him go to the Rochester penitentiary and see a hundred men in one room and a hundred in another sitting in absolute idleness under the oversight of keepers waiting for the time to pass. The monotony of this punishment is relieved occasionally by marching the men around the yard. Here is an inert mass of humanity forcibly removed from society and maintained like a stagnant pool in a corrupting miasm of inactivity as if the only object of such an institution were to breed the scum of civilization, and to propagate it in the community. For it must not be forgotten that the most of these men in the course of six or nine months are going out of prison worse than when they came in. If individual idleness is bad, collective idleness is much worse. To see it in its most evil and contaminating aspect, we must go to the county jails throughout the State, where the orderly silence which prevails at the penitentiary gives place to the freest and most contaminating association in the corridors.

"It may be said that notwithstanding the constitutional limitation of labor, the law of 1896 requires that prisoners in county jails shall be employed six days in every week, and that it is the duty of sheriffs and supervisors to enforce the law. This is true, and in several counties these officers are neglecting even the meager resources which the Constitutional Amendment left in their hands. But the main difficulty is that while the Constitutional Amendment destroyed the market, the subsequent law requiring labor did not restore it. If supervisors and sheriffs in the different counties are asked why they do not keep prisoners at work, they always have to answer: (1) There is no place in the jail where men can work. (2) There is no way of disposing of the product if prisoners did work. Both of these answers have great force. Our jails have no workshops where machinery could be installed, and in most of them the cells are too small and too dark to permit of even hand labor. In most of the counties the county institutions afford no sufficient market for the product of prison industries to encourage the introduction of them."

The fee system as applied to sheriffs in criminal cases is commented on as follows: "It is a blot on the good name of the community that a discredited system which has been discarded by nearly every civilized nation should be maintained here as a source of revenue for local politicians. It is not the county alone; it is the State which pays the cost. The fee system instead of diminishing crime tends to increase it; it substitutes detention for prevention and reformation."

Lunacy in Great Britain.—The fifty-seventh report of the British Commissioners in Lunacy reveals a most serious situation; according to their tables there were in England and Wales on January 1, 1903, 113,964 notified lunatics, 3,251 in excess of the number on the corresponding day in 1902. This increase for 1902 contrasts with one of 2,769 for 1901, and 1,333 for 1900. The average annual increase in

the number of lunatics for the five years ending December 31, 1902, was 2,398. Thus the increase in the year 1902 exceeded the annual average increase in the preceding five years by 853. The latest returns show an increase in the county and borough asylums of 3,749 patients over the number for January 1, 1902. The pauper patients (47,102 males and 56,692 females) have increased in the county and borough asylums by 3,628. As regards the ratio of the insane to the population the Commissioners point out that the aggregate of lunatics under official cognizance on January 1, 1903, gives a ratio of one to every 293 persons of the general population of England and Wales. In 1879 the ratio of lunatics to the general population was 1 to 363, in 1889 it was 1 to 337, and in 1899 it was 1 to 303. The proportion has continued to increase steadily ever since, and it now amounts to 1 in 293. It appears that the rate of recovery is higher among women than among men, but more women die than men. Alcoholic intemperance is assigned as the cause of insanity in 23 per cent. of the males, and nearly 10 per cent. of the women. The male epileptics are more numerous than the female by 30 per cent.

Extermination of Mosquitoes.—"At a luncheon in Liverpool, the other day," writes the *Evening Post*, "Prof. Royce, recently returned from Egypt, gave an interesting account of the success which has attended the efforts to extirpate the mosquitoes and malaria from Ismailia. He said that when Major Ross visited Ismailia in September, 1902, there were 2,000 cases of malaria annually in a population of 9,000 people, of whom 2,000 were Europeans. The authorities at Ismailia loyally carried out his suggestions as to filling up marsh land close to the town and cleaning out small irrigating channels and stagnant waters. That involved an expense of $22,000, and at the same time they organized a drains brigade and a petroleum brigade, and now people could sleep in any of the houses in the European quarter without mosquito nets. Malaria cases had been reduced from 2,000 a year to 200. As a matter of fact, there were no fresh cases of malarial infection in Ismailia; there had been no deaths among Europeans during 1903, and only four among natives, against 30 deaths the year before. The improvement was so wonderful that Prince d'Arenberg, president of the Suez Canal Company, hopes soon to see Ismailia the sanatorium and watering place for Cairo. Major Ross, who was present, remarked that the success of the anti-malarial campaign at Ismailia had taught two things—that it was possible to rid a large town entirely of mosquitoes, and that it was equally possible to eradicate malaria. He had been asked to draw up a report as to malaria cases in India, which were responsible for 300,000 admissions to hospitals from the troops and jail prisoners. With the Ismailia figures before him he felt confident that these high figures would be reduced soon by at least one-third."

OBITUARY.

Dr. William Rankin, Jr., for over thirty years a practising physician of Newark, N. J., died Feb. 27, aged fifty-six years. He was a graduate of Rutgers College and the College of Physicians and Surgeons in this city, and also studied in the hospitals at Vienna, Austria. He was for years on the visiting staff of the Newark Charitable Eye and Ear Infirmary, and Secretary of the old Newark Library Association, and a member of the American Opthalmological Association, the American Otological Association, the New Jersey State Medical Society, and the Essex District Medical Society.

Dr. Theodore Y. Kinne, of Paterson, N. J., died at his home last week of heart trouble. Dr. Kinne, born Aug. 27, 1838, near Syracuse, N. Y., was a descendant of the early settlers in this country from England. After a year's attendance at West Point as a cadet, he resigned and took up the study of medicine. He was valedictorian of his class in the Albany Medical College in 1862. In 1864 he went into the Union Army as an assistant surgeon of the One Hundred and Eighty-fourth New York Volunteers, and later on he was transferred to the regular service of the army. He came to Paterson in 1867.

Dr. Moses D. Knight died at his home in Clinton, N. J., last week. Overwork resulted in an attack of heart disease, which terminated in his death. He was a graduate of the University of Pennsylvania and seventy years old.

Dr. Ogden Curtis Ludlow, whose death was noticed in last week's Medical News, died of typhoid fever. Dr. Ludlow was born on Staten Island and was graduated from the New York University, and the College of the City of New York. His grandfather was the late S. R. Smith of Staten Island, after whom the S. R. Smith Infirmary, at New Brighton, was named. Dr. Ludlow was a member of the American Medical Association, State Medical Association, County Medical Association, of which he was secretary; County Medical Society, Society Alumni of St. Luke's Hospital, and was attending physician at St. Joseph's Hospital. Dr. Ludlow was one of the most skilful medical stenographers in this country, as well as an able and highly esteemed practitioner. He died in the prime of life, and his death will come to many as a personal loss.

Dr. David L. Wallace, a prominent physician of Newark, N. J., and a member of the Board of Health of that city for many years, died of pneumonia last Monday night, after a brief illness.

Dr. Frank E. Baker, ex-superintendent of the Newark City Hospital, and a practising physician, died in that city March 4, aged forty-eight years. Dr. Baker was a graduate of the College of Physicians and Surgeons of this city.

Dr. George W. Neville, a pioneer physician and preacher, and a Union leader in the days of border fighting, died at Bethel, Kansas, aged eighty-two years. At the beginning of the Civil War he recruited the Second Battalion of Missouri State militia, and in 1862, with 100 recruits, he repulsed an attack upon Harrison Mills, Mo., by 300 of Quantrell's Guerrillas.

Dr. Henry A. Rundlett died last Wednesday at his home, No. 102 Hamilton Place, this city, after a brief illness, of pneumonia. He was born in Chelsea, Mass., in 1856 and was graduated from Harvard University and Medical College. He was well known in the profession in this city, being connected with the German West Side Dispensary and the New York School of Clinical Medicine. Dr. Rundlett was a great friend of the late Henry George, and was one of the speakers at the dedication of the monument to his memory.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, February 20.

A MEDICAL PREMIER FOR CAPE COLONY—THE STATE REGISTRATION OF NURSES—HERBERT SPENCER AS A HYPOCHONDRIAC.

The victory of the Progressive party in the recent elections at the Cape of Good Hope will doubtless place Dr. Leander Starr Jameson at the head of the colonial government. He is doubtless well known on your side of the Atlantic as the "hero"—to use the word in a

theatrical sense—of the Raid. It is now nearly twenty years since he gave up the practice of medicine for the career of a political adventurer under the wing of Cecil Rhodes. He went out to Kimberly in 1878 not, as the legend is, for the sake of his health, but in pursuit of an opportunity of establishing himself in that place as a physician which unexpectedly presented itself. He was very successful and his name became so widely known through South Africa that, by an irony of fate, he was once called in to treat President Kruger. At Kimberley Jameson became intimate with Rhodes who had been condemned by his English physicians and who went to Africa to seek a respite from what was believed to be imminent death. In course of time as the horizon of a new life opened up before him Rhodes induced Jameson to become Administrator of Mashonaland. I need not rehearse the oft-told tale of the Raid and the imprisonment that followed. Jameson himself has said that he made a mistake and paid the penalty. But it cannot be forgotten that his country also suffered grievously for his folly. Unless he has learnt wisdom in the school of experience, his career as Premier of Cape Colony is only likely to lead to fresh disaster, for he is impulsive and headstrong and lacks the qualities that go to the making of a trusty pilot of the Ship of State. As a doctor he had plenty of knowledge but was deficient in judgment; exactly the same may be said of him as a politician. It should be added that he is honest and utterly disinterested. He was the only one of the Rhodes gang who did not amass a vast fortune. This should be reckoned to him for righteousness, for he had every opportunity.

A Bill for the State Registration of Nurses has been introduced in the House of Commons by Dr. Robert Farquharson. It has the active support of two other medical Members of Parliament, Sir John Batty Tuke and Dr. Edward C. Thompson. It was read for the first time on February 15. The object of the Bill is to establish a recognized standard of capability and to prevent any woman who has not reached that standard from calling herself a registered nurse. As is pointed out by Lady Helen Munro Ferguson, in the February number of the *Nineteenth Century and After*, the nursing profession dates from after the Crimean War, when Miss Nightingale organized the first training school in St. Thomas's Hospital. She herself, and Miss Agnes Jones, the pioneer of Poorhouse Nursing, had to find their training in the Kaiserwerth Deaconesses' Home on the Rhine, where the care of the insane and the teaching of children alternated with attendance on the sick. The training organized by Miss Nightingale was more strictly profession in character, and lasted for one year, a period which has subsequently been extended to meet hospital necessities and the growing demands on nurses' skill and knowledge, until to-day no fully trained nurse has had less than two years in a general hospital. Meanwhile the scope of the profession has enormously increased, and some of its latest developments, which bring it into direct contact with the homes of the people, have converted it into a potent instrument of social progress. Mr. Charles Booth states in his book on London that "it is almost true to say that wherever a nurse enters the standard of life is raised;" and he speaks of the advance in this direction as "perhaps the best fruit of the past half-century." The public has not been behind the scientific inquirer in fully appreciating the value of district nursing, and there will soon be scarcely a country town or village without its Queen's or parish nurse, while the quality of the services employed has been considerably raised through the impetus given to the movement by the late Queen Victoria, when she dedicated her Jubilee Gift to the training of highly skilled nurses for the poor. Continued efforts are being made to secure trained nurses for the poorhouses and workhouse infirmaries Certain London schools now employ visiting nurses to inspect and attend ailing pupils, and it may be expected that the Scottish Report on the physical condition of children will lead to further employment of nurses in connection with our elementary schools. In other directions new spheres of usefulness are opening before them. The imperialist wave has swept them into the service of the Empire, and newly formed societies have organized the Nursing Associations for India, South Africa, and the Crown Colonies. While on the one hand the sensitiveness of the public to political and social questions is encouraging the development of nursing; on the other, it is found that the progress of scientific surgery and the increasing numbers of special treatment and curative processes are entailing fresh calls upon the profession and necessitating a rising standard of skill and knowledeg. Yet the profession is still, as regards its internal organization, in a state of chaos. It has no governing body, no standard of training, no corporate existence. Every hospital—whatever its size and standing—is a self-constituted training school. Each works as a separate unit, carries out its own theories of training, and confers its own certificate. A woman who has been two years in a small cottage hospital, six months in a lying-in hospital, or some such specialized institution, will emerge from it as legitimately a "nurse" as a woman who to her three years in a general hospital has added experience in fever and obstetric wards, and passed through the courses of theoretical instruction in bacteriology, physiology, and sanitary science, which form part of the training in many of our large institutions. In these latter hospitals the period and character of the training are more or less assimilated; but even in their case the terms and conditions of service are very varied. Everything depends on the matron. She can curtail or lengthen the period of probation; she can so arrange the work that her nurses will pass successively through the medical, surgical, and other wards, gathering all kinds of experience; or she may so legislate that her nurses will leave the hospital, having seen but one department of work, and remain therefore practically untrained in every other important direction. The certificate earned in either case will be of precisely the same value, will carry the same consideration, and entitle its recipient to the same remuneration. As a result, the prizes of the profession—rich as they are—are distributed haphazard among the fully trained and the partially trained. Private nursing institutions, from which the general public draw their nurses, are staffed with nurses of every kind and degree of training, the one point of similarity being the fees they demand. This state of affairs is unfair not only to the nurses themselves, but to the public. During the late war, when the supply of Army Nurses and their reserves had become exhausted and a call came for volunteers, the absence of a register and the impossibility of discriminating between the qualifications of applicants was a serious handicap, and resulted in the employment of many partially trained nurses, to the exclusion of those who were equally willing and more efficient. The Bill introduced by Dr. Farquharson is intended to remedy those evils. There is, however, very little chance of its becoming law this year. It is to be opposed by the Central Hospital Council for London. That body at a meeting held not long ago at which representatives of all the leading London Hospitals were present passed a resolution to the following effect: "That this council is opposed to any State registration of nurses, and that steps be taken on behalf of the council to oppose any Bill in Parliament having such registration for its object." The case for registration is so

plain and so cogent that it is difficult to believe that this action of the Central Hospital Council is inspired by any higher motive than the wish to prevent interference with the brisk trade which the big hospitals at present ply in nursing certificates. From an economic point of view a uniform standard of professional proficiency would not suit them. It is the old story of "vested interests" which in this country stands in the way of every proposal for reform. There can be little doubt, however, that a State register for nurses will, at no very distant date, be established. The nursing world here is divided into factions which hate each other with all the fervor of rival philanthropists. Another bill having the same object is being promoted by another Society, and the British Medical Association is understood to be considering the whole question. The principle of a measure of such distinct public utility can scarcely fail to be adopted, and when that has come to pass legislation must soon follow.

Much has been written about Herbert Spencer's ill health, and it is certainly wonderful that a man whose physical weakness was so much out of proportion to his intellectual vigor should have produced so much. It appears, however, that he was, at least to a large extent, a *malade imaginaire*. Mr. William Henry Hudson who was for a considerable time closely associated with him in his literary work, tells us that the philosopher's long-continued ill health had hardly any effect on him outwardly. His tall and rather gaunt figure was almost to the last wonderfully erect; his cheeks were always ruddy; his splendid voice—which would have been a fortune to an orator—retained its richness and resonance, his rather rare laugh, its deep-chested musical quality. Few men in the eighties were so well preserved as Herbert Spencer; and it was difficult in looking at him or listening to him to believe that for half-a-century he had been to a considerable extent an invalid. He was often irritable and sometimes quick of temper and of tongue; and he had so little tolerance for the foibles, prejudices and petty absurdities of every-day life that he now and then struck one as hard and even censorious. His irritability had its root in his physical condition. Overwork on his *Principles of Psychology*, which in its original form was published in 1855, brought about a severe attack of nervous prostration from which he never wholly recovered. From that time he was a martyr to dyspepsia and insomnia in their most obstinate forms. He told Mr. Hudson that from the period of his breakdown in middle life he had never known what it was to enjoy a full natural night's sleep. On meeting him in the morning Hudson would ask how he had slept, and the best answer he ever had to give was "I had a very good night for me; I slept four hours." Matters were made worse by his constant recourse to all sorts of soporifics to which he had in the first instance been driven by sheer despair, and which he long employed in quantities which frequently caused his friends alarm. These drugs, while, of course, they did nothing toward the permanent alleviation of the insomnia, undoubtedly aggravated the digestive troubles, while the reaction following their use just as certainly increased the nervous depression and irritability. Another feature of the case, and a very distressing one, was the hypochondria which grew out of these conditions, and which, during the later years of his life, added to the invalid's actual sufferings a variety of imaginary ills. Again and again physicians assured him that the great organs were all sound; he was never fully convinced; and he ultimately got into the habit of watching himself and his symptoms with a morbid curiosity and a minuteness the mental results of which may be readily conceived. Another writer who knew Spencer well, says that "like other valetudinarians he was a somewhat exacting visitor and host. He hated striking clocks, especially those out of doors. When lodging in a village in Berkshire he sent a peremptory request to the owner of the principal house there that the stable clock, which struck the hours, should be at once stopped. When out driving he would, if it occurred to him that he was not feeling well, carefully ascertain the speed of his pulse, and were that not entirely satisfactory would there and then give the order to return home."

PLAGUE IN INDIA.

To the Editor of the Medical News:

Dear Sir: The practical medical man in America will ask but two questions about the plague epidemic in India: (1) Is it likely to spread to the United States? (2) Are suitable measures being taken in all infected ports to prevent rats and other animals from carrying vermin on board ships sailing to American ports, and in general, to prevent the shipping of infected materials?

Considering the distance of India from the United States, and the strict quarantine measures enforced at all American ports, the first question may safely be answered in the negative. To answer the second, would require a thorough knowledge of the difficulties under which the authorities labor in all hygienic matters. The casual observer might readily report that there were very few sanitary precautions taken, either in the city or in the vicinity of the docks where foreign-going ships are loaded. It is true that the quarantine regulations of the United States are not strictly complied with; for instance, on page 16, paragraph 14, of the Regulations, we read: "At ports or places where plague prevails, every precaution must be taken to prevent the vessel becoming infected through the agency of rats, ants, flies, fleas, or other animals. At such ports or places the vessel should not lie at a dock, or tie to the shore, or anchor near any place where such animals may gain access to the vessel. In case cables are led to the shore, they should be freshly tarred and provided with inverted cones or such other devices as may prevent rats and other animals passing to the ship." But any one who cares to visit the docks will find every vessel tied closely to the wharf, with numerous gangways open, and innumerable cables passing from shore to ship, provided with none of the devices suggested above. That there is something very remiss here can hardly be questioned. And the same observer may go into the parts of town where plague prevails, and accompanying the divisional health officer to a tenement where a case of plague has been reported, may see how powerless the officer is, either to compel removal of the patient to an isolation hospital, to prevent a considerable circle of relatives from becoming exposed by proximity to him, or to carry out any disinfection, so long as the patient wills to remain in his own bed. The observer begins to feel that there is nothing to prevent plague from wiping out the population of Bombay and from extending whithersoever it will, by sea routes.

Two facts must be borne in mind to quiet these fears. One is that the inspection of foreign-bound passengers and of their luggage is very thorough, especially in the case of natives or others who have come from seriously infected localities. The process will be described a little later. And the other is that in general, plague shows a tendency to restrict itself to tenement houses which have previously been infected, not often attacking new quarters. And further, that those who exercise proper personal precautions, run comparatively little risk of becoming infected. It is needless to add that those who have been inoculated with Haffkine's prophylactic fluid

are practically safe, even in the presence of a large number of plague cases.

When the disease first appeared in Bombay, late in 1896, stringent measures were adopted by the Government to prevent its spread. Extensive disinfection was undertaken, segregation was compelled under military force in a large number of cases, and other means tried. So strong, however, is the religious hatred of the native, either Hindu or Mohammedan, for anything that seems like interference with his home, that a tremendous feeling of hostility, amounting practically to revolt, was rapidly aroused. The Hindu felt that his home was defiled by the promiscuous entrance of Europeans and servants of low castes. The Mohammedan would far sooner die than be compeled to go to a hospital. And little by little, the stringent measures *had* to give way. Many of them were unnecessary, and others possibly unwise, but at the present, everything that seems like compulsion has been abolished. A single illustration will suffice to show how strong was the feeling of resentment against interference. In one case where it was reported that there had been a death from plague in a certain house, the health officer made his visit, accompanied by the usual squad of policemen, but on asking to see the body, was told that there had been no plague there. The family, known to number eight, were gathered at their meal in full force, and entreated the officials not to come near them lest the meal be defiled. However, as careful search through the house failed to reveal the presence of any corpse or even of a living patient, the inspector approached the family and told them that they must leave the house at once, as it was to be disinfected. Much against their will, seven of the number rose from their seats, while the eighth was now found to be the corpse of the patient who had died of plague, and which had been thus propped up at the meal in order to avoid detection and disinfection.

A sad event in Northern India last year proved to be a great setback to the plague operations there instituted. In one village, after much persuasion, the leading native official had succeeded in getting the people to submit to inoculation, which was done to a large number of persons. It would have been a splendid field for studying the protective powers of the prophylactic, had it not been that within a few days nine persons died of tetanus, evidently contracted through the inoculation. No statement has yet been made public as to exactly where the blame lay, but, of course, the whole country round about became greatly frightened, and no more inoculations could be done for some time. The government of the Punjab, where the accident occurred, has just published the following statement: "The plague measures hitherto adopted have failed to secure the thorough cooperation of the people or to exert much influence on the course of the epidemic. . . . The time has come to cancel some of these and relax the rest. . . . The few necessary and harmless(!) rules which still remain will be enforced strictly, and if necessary, by prosecution, in case of negligent acts likely to spread infection. But prosecutions are to be discouraged. Although early information of the first cases of plague is very important, the compulsory examination of suspected patients or corpses is forbidden, but every person in whose household plague cases or deaths occur, is responsible for reporting these. So soon as the fact is known, information will be spread widely to warn intending visitors of the danger. . . . Evacuation of dwellings is especially advised as soon as nature warns of danger by the presence of dead rats. And if the majority in a village send in a written petition, coercion of the minority may be employed. . . . There is to be no restriction in the future, of the movements of people, with a view to checking the spread of infection by human intercourse, from place to place. There will be no prohibition of railway travel to infected areas and no interference with the travel of persons by road. Railway and road inspections will not be resorted to, and people will be allowed to move about freely in connection with fairs, marriages, and social gatherings. . . . As the religious feeling of the people is opposed to measures for the wholesale death of rats, and as money is wasted without the cooperation of the people, no considerable expense will be incurred along this line in the future."

This government statement has been quoted from rather fully, because it shows so well the way in which, one after another, the authorities of the several infected districts have been compelled to retract from their original position.

The status of disinfection requirements in Bombay and determination of the cause of death in suspected cases, is about as follows; watchmen are appointed at the various burning grounds and cemeteries to give notice of deaths. There are others who are detailed for duty in each district of the city to find out where plague cases have occurred. On receiving a report of a case, the subregistrars, who are qualified hospital assistants, try to get permission to examine the case, during life or after death. If this is not granted, they seek to determine by inquiries, the nature of the case. If it be thought that the case was one of plague, the registrar orders disinfection, and this is carried out either (1) after the case is removed to hospital; (2) after recovery; (3) after the death of the patient, should that occur. In other words, the place may remain without disinfection until the patient recovers or dies. For disinfection, phenyl and acidified bichloride of mercury are used, the furniture being swabbed with the former, and the walls with the latter, the floors being drenched with the same. It is difficult to persuade the relatives to produce any of the patient's clothes for disinfection.

In spite of this enforced absence of stringent regulations, the plague prospects for Bombay are brighter now than in any year of the past seven. Although there were more deaths from plague during the week ending January 19, for example, than in any previous week since last spring, yet it is by looking backward that one is encouraged to hope for improvement. During the week ending January 19, there were 189 deaths from plague, with a total death rate from all causes, of 45.56 per thousand per annum, whereas the mortality figures from plague for the corresponding weeks since 1897 have been 470, 651, 308, 428, 328, 296, 469; and the total death rate for the corresponding week has never been lower than 66.13 since the epidemic started. Just why there has been this improvement it is hard to say, although it is certain that the large number of inoculations done in the past, coupled with the tearing down of buildings unfit for human habitation has been responsible for much good.

If one turns to the inspection of passengers leaving Bombay by sea, there can be little complaint of lack of thoroughness. In the case of Mohammedans, who at certain seasons of the year go in large companies on pilgrimages to Mecca, the requirements are especially strict. The pilgrims are arranged in long lines and individually looked over, all who have fever or other suspicious symptoms being set aside. All who pass this preliminary survey are sent over, in groups of a thousand or so, to a small island in the harbor, where they remain under further supervision for ten days longer, being allowed to embark directly from the island if still free from plague symptoms. All but the newest of baggage is thoroughly sterilized by steam under pressure. Not even first-class passengers are allowed to embark without having been passed by the

medical officer, whose examination need not consist frequently, in any more than a determination that the said passenger has not come from an infected locality and that he has no fever.

In all parts of India, the Government is doing whatever it can, in the laboratory and by personal observation of infected localities, to determine what is the most prevalent method of infection, and to evolve new methods of combating the epidemic. They are now undertaking a series of observations as to the recurrence of plague in infected tenements, even after repeated disinfection, and it is hoped that some facts may be brought to light which will have a practical bearing on the control of the disease.

Edward H. Hume, M.D.,
Acting Assistant Surgeon U. S. Public Health and Marine Hospital Service.
Bombay, India, Feb. 3, 1904.

SOCIETY PROCEEDINGS.

HARVARD MEDICAL SOCIETY OF NEW YORK CITY.

Regular Monthly Meeting, held December 26, 1903.

The President, Frank H. Daniels, M.D., in the Chair.

Tinnitus Aurium.—This paper was read by Dr. William S. Bryant. So-called tinnitus aurium, he said, may take the form of any conceivable sound, rumbling or pulsating or bell ringing, and in addition to the sound heard there is often an indefinite sense of discomfort within the head. It would seem that these disagreeable feelings cause the proverbial melancholy and irascible temper of the deaf, which by contrast make the blind seem happy. It is generally recognized now that almost any form of deafness or impairment of hearing, is apt to be accompanied by noise in the ears. In nervous individuals the annoying symptoms occasionally become unbearable.

Temperament and Tinnitus Aurium.—Dr. Bryant considers that of late years particularly there has come a very general realization that the effect of noises in the ears are largely dependent upon the individual idiosyncrasy as regards the bearing of annoyances. Very nervous people are not able to stand even slight noises without being so disturbed that they cannot eat or sleep or have any comfort. On the other hand, phlegmatic individuals stand even loud noises without any considerable complaint, and these same patients find that even a little relief affords them so much diminution of whatever annoyance was present that they are very well satisfied. Of course, this same thing is true with regard to other nervous symptoms and the bearing of pain or discomfort generally by nervous people. It will usually be found that if nervous patients do not stand sedatives well, any measure of relief that can be afforded to their tinnitus aurium short of absolute eradication of it, will not seem to them to have benefited them very much.

History of the Affection.—Tinnitus, that is noises in the ear or in the head, was described among the old Greeks by Hippocrates, the father of medicine, and by some of his disciples. Its treatment was then a perplexing problem and it has been so ever since. In recent years otologists have found that it is even more common than was formerly supposed and that very few affections of the ear fail to be unaccompanied by this symptom to a greater or less degree. The diagnosis of tinnitus aurium depends wholly on the statement of the patient, for the symptom complex is purely subjective; there are noises in the ears or in the neighborhood of the ears that may occasionally be heard by anyone who listens for them, but these do not come under the head of tinnitus aurium, which is an entirely subjective phenomena of ringing in the ears.

Etiology.—Tinnitus aurium is due to slight rather than to grave disturbances of the middle ear and is much more common with catarrhal than with purulent inflammation. In most cases the condition is a gradual development of progressive catarrhal or degenerative processes in structures connected with the ear and with the posterior nares. The most important primary cause is either defective nasal respiration, or frank mouth-breathing which excites catarrhal conditions. Not infrequently these seem to be aggravated by some underlying constitutional defect usually spoken of as the gouty diathesis, or considered to be at times some nutritional or circulatory disturbance.

Course of the Disease.—The chapter of accidents which finally leads up to tinnitus aurium practically always begins in infancy and mouth-breathing is writ large on the first page. As the result of mouth-breathing, unfiltered air is carried directly into the posterior fauces and there is caught by the lymphoid tissue consisting of the true tonsils and the faucial tonsillar ring. These microorganisms are usually not very virulent, but they produce low grade inflammatory conditions, commonly spoken of as catarrhal. As a consequence of their presence and the lymphoid reaction against them, hypertrophy of all the tonsillar ring occurs. This is the principal cause for adenoids and is the primary step. While it is usually considered that adenoids are the cause of mouth-breathing, the vicious circle seems to start the other way. The third page of the chapter of accidents that leads up to tinnitus aurium, is nasal deformity with more or less serious obstruction of breathing through the nose and the last page is chronic inflammation of the whole mucous lining of the nasopharynx and middle ear and then surely comes the tinnitus. The conclusion of the chapter is deafness.

Mouth-breathing.—To Dr. Bryant it seems clear that mouth-breathing is generally the precursor and not the consequence of nasal obstruction and it is this perversion of function that causes the local hypertrophy of the lymphatic tissues. When nasal breathing does not continue, the nose no longer subserves its true function and, as a consequence becomes diminished in size, thus keeping up the vicious circle that has been established. Hence the presence of a deflected septum so often in these cases. Because of the absence of function, all the outer portions of the nose do not grow as they should. The nasal septum reaches its normal development, however, and, in order to accommodate itself to its narrowed quarters under the pathological conditions, it must become deflected or bent on itself.

General Conditions in the Etiology.—There is no doubt now in the minds of the great majority of the otologists that many constitutional conditions are responsible for tinnitus aurium. It is not difficult to understand how this is the case. The general conditions most often responsible for it are gout, anemia, cardiac disease, chronic kidney disease, or liver disease and the like. All of these cause a disturbance of the general metabolism, and lessen the resistive vitality of the lymphoid tissues in the throat. As a consequence of this micro-organisms that find their way into the mucous membrane of the fauces, set up low grade inflammatory conditions, which lead to disturbances of the circulation in the mucous membrane of the nasopharynx, the Eustachian canal and even the middle ear itself. Under these conditions microorganisms that enter the respiratory passages with the oral respiratory tide are not properly resisted. When nasal respiration is normal they are strained out of the air and, becom-

ing entangled in the mucous secretion, flow down out of the nose, to do no further damage.

Prophylaxis.—The prophylaxis of tinnitus aurium must be begun early in life and must be directed mainly to the prevention of mouth-breathing and catarrhal inflammations of the mucous membrane of the fauces, especially if anemia or gout is known to be present. For the best results prophylactic measures must begin in early infancy and must be directed from the very beginning to the maintenance of nasal breathing. Children of wealth seem much more likely to be affected with mouth-breathing than those of the poorer classes. Anyone who has studied the habits of the children of the rich, their tendency to talk much and thus keep the mouth open, encouraging mouth-breathing, and to gape at curious things that they are taken to see instead of being allowed to play with playmates in their own way will easily understand this additional frequency. There must be much more attention to somatic conditions in children rather than to the cultivation of intellectual precocity.

Prognosis.—The prognosis of tinnitus aurium depends on the cause to which it is due. Dr. Bryant found from many years of experience in the Massachusetts Charitable Eye and Ear Infirmary, commencing as far back as 1887, that a cure might be expected in every case when the tinnitus was due to some disease of the outer ear alone. A cure might be expected in 50 per cent. and considerable relief of symptoms afforded in the other 50 per cent. when the middle ear alone was affected. When the disease is due to general conditions the prognosis depends almost entirely on the power of therapeutics to control the anemia, the gouty condition or the cardiac disease, to which the disturbance of the ear circulation is secondary.

Treatment.—As prophylactic treatment, Dr. Bryant considers that the most important factor is the removal of adenoids in children, so as to permit of nasal breathing, before the nasal tissues have become so abnormal as to make the resumption of their breathing function a difficult matter. Adenoids should be removed in young children as soon as discovered and whenever mouth-breathing exists the cause should be traced and removed so soon and whenever possible. Conditions very soon become inveterate and then simple operations no longer effect the benefit that they would at the beginning. The treatment of the fully developed condition of tinnitus aurium has in the past covered all the department of otology and nearly all of general medicine. The most important element of direct treatment is to correct all functional disturbances of the ear and its appendages. The complete function of the Eustachian tube must be restored by the use of inflation applications of adrenalin and stimulation with nitrate of silver or electricity. In this matter the otological treatment for tinnitus aurium and deafness are practically identical. In certain cases the tinnitus becomes unbearable because of its severity or the nervous condition of the patient, and patients may suffer very severely from it. Fortunately, in these cases, the condition never lasts very long. Care must be taken in the application of local treatment, since too energetic measures are almost sure to disturb the circulation further and so increase the ringing in the ears. Nor will the reaction after severe treatment always bring benefit.

General Conditions.—When the cause of tinnitus aurium and the subinflammatory condition in the ear structures that is at the base of it, depends on constitutional conditions, then the treatment must apply mainly to these conditions and the prognosis of the case depends on the power to secure relief by medical means. In all cases the general treatment is nearly as important as the local and the treatment of the nasopharynx and of the Eustachian tube is more important than the treatment of the tympanum proper. The fault of treatment generally is that too much attention is paid to the ear and too little to the throat and pharynx. On the other hand, there are supposed to be specific drugs and these are used when general conditions should be treated.

The most important feature of the whole subject is the possible prevention of tinnitus aurium. For this the avoidance of mouth-breathing is absolutely necessary. Animals never breathe through the mouth, except when respiration is very deep, because of recent severe exertion. Anyone who knows much of dogs and horses knows also that if their noses are held they will not open their mouths to breathe until they have to gasp for breath and they almost strangle before doing so. It is important then to train children with regard to mouth-breathing early in life and to make them live a life as much in accordance with nature as possible.

Adenoid Operations and Mortality.—Dr. Putnam said that not long since he had been asked to see a case in consultation in which purulent meningitis had developed after an operation for adenoids. The termination of the case was, of course, fatal. It seems probable to him that there are many more fatalities after adenoid operations than are reported or than there are usually considered to be. Some time ago he saw a similar case in a young adult of twenty years suffering from a typical acute infectious meningitis after operation. It seems not unlikely that in these cases the removal of the lymphatic tissue leaves lymph passages open for the absorption of infectious material of various kinds, which, owing to conditions, is practically always present in the throat.

Specific Meningitis.—Dr. Reynold Webb Wilcox reported a case in which an operation for adenoids was followed by meningitis with all its symptoms of aseptic conditions. Examination of the cerebrospinal fluid, however, showed the presence of the *Micrococcus intracellularis*. In these cases it seems that such microorganisms may be latent, or at least entirely inactive in the lymphoid tissues in the throat and then, after operation, find their way directly into the meninges through the rich lymphatic system which exists in this region. In this case there were no ear or nose complication and no possible question of the diagnosis which had been made by strict bacteriological methods.

Endocarditis After Adenoid Operations.—Dr. Coley said that he had been asked to see a case of endocarditis which occurred after an operation for adenoids. He knows of the occurrence of two other cases in which septic infections of serous membranes followed a successful operation for the removal of the over-grown adenoid tissue. He considers that physicians should recognize that there is always a certain amount of danger after an operation for adenoids and that patients should be forewarned of this and in the case of children the parents should be given some hint of the possibility of septic conditions.

Adenoid Operations at Home.—Dr. Daniels said that to his mind the principal danger in adenoid operations consisted in their performance in the physician's own office and then their walking home shortly afterward through the streets where the dust is almost sure to contain infectious material. It must not be forgotten that there is a large open wound and that air necessarily passes over it. Dr. Daniels considers that the operation should never be done in a physician's office under any circumstances and considers that the taking of this precaution has had not a little to do with his excellent result.

Use of Bromides.—Dr. Bryant, in closing the discussion, said that not infrequently he found the bromides of service in lessening the amount of discomfort occasioned by the tinnitus aurium. Patients who are very nervous, however, sometimes do not react well to sedatives and usually these are the patients who are most bothered by even slight amounts of ringing in the ears. Where the bromides will allay the nervousness there is marked improvement under their administration. In all cases it should be remembered that the underlying conditions, whether it be the gouty diathesis or pure anemia, or defects of the circulation, or congestion of mucous membranes all over the body, as from cold, the general treatment is more important than the local treatment.

Successful Therapy.—Success in the treatment of tinnitus aurium depends not a little on the temperament of the patient. If the sufferer is easily irritated and unable to stand discomfort well then the outlook is very unfavorable for any relief. Under ordinary circumstances, however, relief can be afforded in the vast majority of cases. Dr. Bryant considers that it is a very fortunate thing that his paper should have brought out in the discussion the question of the dangers involved in the removal of adenoids from the throat in certain cases. The operation is by no means so trivial as it is often considered and failure to take proper precautions by careful cleansing of the throat for days beforehand and the avoidance of infectious inoculation afterward may have the most serious consequences. It must not be forgotten that in these cases of enlarged tonsils and hypertrophic adenoid tissues microorganisms have been caught in large abundance in the lymphoid tissues. Owing to conditions they are destroyed at once, but lie more or less dormant for some time and consequently are ready to be absorbed as soon as the operation for adenoids is performed. The emissary veins and the rich lymphatic connections between the outside and the inside of the skull at this point makes any such infection particularly dangerous.

NEW YORK ACADEMY OF MEDICINE.

Section on Genito-urinary Surgery.

Stated Meeting, held January 20, 1904.

The President, James Pedersen, M.D., in the Chair.

Case of Carcinoma of Retained Testis.—Dr. Sinclair Tousey presented this specimen and reported the case.

Dr. Ramon Guiteras said he had had but one similar case, the retention occurring within the inguinal canal. The case terminated fatally. He had had a number of cases of retained testes occurring in different positions and only one proved malignant.

Dr. Howard Lilienthal said he had a case of sarcoma of retained testis which would be reported in his paper.

Dr. Pedersen referred to a case on which he had operated two or three years ago, the details of which were reported at the time. The patient when fourteen years old had received a blow on the left testicle which had driven it out of the scrotum and up to a point apparently just within the internal abdominal ring. He gave the matter no attention until fourteen years later, when he complained of pelvic pain and disturbances of the bladder and rectum. It was at this time that he came under observation. The tumor was about 8 inches long and 4 inches in its widest diameter; it was wedged between the bladder and rectum. A secondary process involving the retroperitoneal glands extended upward along the blood vessels, as in Dr. Tousey's case, and could not be removed. The main tumor was removed and the patient made a good recovery. He was comfortable and relieved of his symptoms for four months. He died cachectic at the end of seven months.

Dr. Sinclair Tousey, in reply to Dr. Van der Poel, said that the patient gave a history of severe pain in the back and then there suddenly commenced a distention of the abdomen very similar to ascites resulting from an enteroptosis. During the course of treatment, when the distention subsided, there was still present a large tumor in the abdomen which was much larger than its present size, the cystic portion being twice as large as the solid portion. The patient then presented the appearance of a woman with a large uterine fibroid.

Small Lipoma of the Cord.—Dr. Ramon Guiteras presented a specimen of a small lipoma of the cord which he had removed during the course of a hernia operation. He said they were frequently met with during hernial operations, but did not think that they possessed any particular significance. He presented the specimen chiefly for the reason that there was found at one end of the lipomatous mass a hard nodule which felt as though there was a small concretion in the mass. After excising the lipoma he incised the nodule and found simply hard tissue which he thought to be a fibrolipoma of the cord.

Dr. Howard Lilienthal said he did not believe lipomata of the cord to be especially rare and, contrary to what had been stated, he believed this was a very important matter because it was not infrequently a direct cause of the hernia; if the cord was in proper position the growth of the mass distended the canal and permitted a hernial protrusion.

Dr. E. L. Keyes, Jr., said that Dr. Alexander presented to the section a man upon whom he had operated some months before for a fibro-lipoma of the cord, so diagnosed by the pathologist. The patient had recurrences and the case proved to be apparently a malignant growth. At the time of operation the whole inguinal region was solid with the tumor which was evidently growing up into the pelvis. He said it would be interesting to know if this tumor gave evidences of malignancy.

Dr. Guiteras said he had seen a number of cases of lipoma of the cord in performing hernia operations, but that he had never seen such a hard nodule in the lipoma and he presented the specimen in order to obtain the opinion of the section regarding its nature.

Prostatic Douche Tube.—Dr. Ramon Guiteras presented this instrument, which consisted of a simple tube having an inflow and an outlet connected with the main tube. It was shaped like a sound, was hollow and had in it four slits near the end which were for the escape of the irrigating fluid. The proximal end of the instrument was connected with the douche-jar and any solution one cared to employ ran through the tube. When the end of the tube was in the bladder beyond the sphincter the prostatic urethra was douched and the fluid would go into the bladder. When the patient's bladder became distended after douching the prostatic urethra the fluid then would escape alongside the tube. If spasm existed and there was a tendency to expel the fluid from the urethra with force the grasp was relaxed on the outflow tube which acted as a vent and resulted in taking off the pressure. In cases of chronic posterior urethritis the instrument worked very well, especially when there was an associated chronic prostatitis when massage of the prostate had been done. He thought it might have been better to have a double current tube, and so he had had made another tube. There was a small tube running through the main one, and, near the end, there were four slits, one on each side. The water or irrigating fluid escaped along the sides.

Dr. John Van der Poel thought that, in some cases, it might prove to be a very useful instrument, especially

where one wished to irrigate the posterior urethra and the bladder at the same time with some solution so weak that it would not have a deleterious affect on the anterior urethra. As a rule he followed a different method because he had never found that passing such an instrument in these cases necessary. He emphasized the importance of not using strong irrigating solutions. His method ordinarily had been to inject the anterior urethra from the meatus with a weak solution of cocaine or eucaine; then with a Janet or Janet-Frank syringe he introduced the fluid into the bladder from the meatus, and allowed the patient to pass it out afterward. If the mucous membrane anterior to the cut-off muscle was sufficiently anesthetized when the fluid entered the urethra it would usually cause a relaxation of the cut-off muscle and no trouble would be experienced in getting fluid into the bladder. Success depended much upon anesthetizing properly the mucous membrane, covering so to speak, the anterior surface of that cut-off muscle. He had treated many cases of gonorrhea, where he had found it not at all necessary to anesthetize the urethra, especially subacute and chronic cases.

Dr. Pederson thought it significant that this means of irrigating the prostatic urethra had not produced epididymitis. He believed that certain cases of chronic posterior urethritis and chronic prostatitis have a patulous condition of the ejaculatory ducts and he has felt that any form of irrigation under these conditions is likely to excite epididymitis. He confessed to some timidity in applying irrigation to the posterior urethra in these cases, even by means of a soft rubber catheter.

Dr. John Van der Poel said that in chronic cases he had never seen an epididymitis or an orchitis arise when the irrigations were given as he had indicated. He had seen such occur when there was an acute anterior urethritis, but the number of cases of epidymitis in acute disease were far rarer, according to his observation, since he had used this method.

Renal Decapsulation in Chronic Nephritis.—Dr. Ramon Guiteras read this paper and said that what he had to present was largely from two papers that had already been published. It was only within a comparative recent period that the kidney was considered a field for surgical treatment, as formerly it had belonged to the domain of the physician. Since Simon classified the surgical diseases of the kidney, the onward strides in kidney surgery had kept pace with the advances of surgery in other fields. Among the first suggestions for the operative treatment of nephritis, was one from Harrison who reported three cases of albuminuria which were cured by incising the parenchyma of the kidney nephrectomy, and he attributed his success to the relief of the increased renal tension which accompanied the nephritis. These cases were supposed to have been operated upon for albuminuria, although the real causes were suspected surgical conditions. One was operated upon for a suspected renal abscess and the other two for supposed stone. After the operation, Harrison was surprised to learn that the albumin had disappeared from the urine. This report really showed the possibility of this operation. Newman, of Glasgow, did nephropexy for torsion of the renal vessels in patients having albuminuria and cylinduria, and in both of his cases the albumin disappeared after the operation, although Dr. Guiteras did not think much importance could be attached to this, as they were probably both cases of movable kidney with congestion and interfered renal function. A number of cases of nephritis with hematuria and nephralgia he said were operated upon by nephrotomy by other surgeons, but in most of these cases it was thought that there was some surgical condition of the kidney present, such as stone. With such cases, there had been noted an improvement in the condition of the urine, the pain and hematuria being relieved. In these cases, the operation was nephrotomy. In a collection of 25 cases operated upon for these symptoms, in 11 the kidney was removed with two deaths, and in 14 others in which nephrotomy was performed, there were two deaths. All these cases were unilateral and the operations were done for some supposed surgical disease of the kidney. It was afterward found that the albuminuria and casts disappeared from the urine and the patients were much benefited in all the cases. He said that, according to Israel, nephrotomy was indicated in cases of chronic nephritis only when there was hematuria, a nephralgia, or both. He then briefly reviewed the mechanism of the manner in which relief or cure was effected and stated that Isreal's work was of great importance in renal surgery. He said that in 1899, Furgeson, of Chicago, wrote a paper and expressed the opinion that chronic nephritis should be treated on surgical principles, such as controlled inflammations in other parts of the body. To Edebohls belonged the credit of attempting to operate upon the kidneys purposely for the cure of Bright's disease. In his first contribution to this subject, the operative treatment of chronic nephritis, Edebohls reported 18 cases, 14 being bilateral and four unilateral. The examination of the urine, the previous history, and the appearance of the kidneys, were the chief factors in making a diagnosis. In 16, the operation was nephrotomy, 11 were bilateral and five unilateral. Dr. Guiteras then briefly review Dr. Edebohls' method of performing this operation. In the two remaining cases, he stripped the capcule entirely from the kidney, did not fix it to the abdominal wall, but replaced it in the fatty capsule. This operation is since known as Edebohls' operation for chronic Brights. Among Edebohls' 18 cases, the right kidney was affected in four cases, the left alone in four cases, and both kidneys in nine cases, while in one case the unilateral or bilateral nature of the case was undetermined. There was no mortality among these 18 cases. In six of the eight cases in which the chronic Bright's disease was unilateral, the healthy condition of the opposite kidney was confirmed at the time of the operation. Summing up the results, Edebohls found that in eight cases which were observed for a sufficient length of time, the albuminuria and casts disappeared in from 4½ (the shortest time) to twelve months (the longest time). It was concluded that chronic Bright's disease was amenable to operation, although he did not state that all cases could be cured in all stages. Dr. Guiteras then offered an explanation of the relief which followed decapsulation. This operation resulted in the formation of adhesions and the growth of new arterial vessels supplying the kidney and contributing to the regeneration of the but little altered parenchymatous elements, as well as to the absorption of interstitial exudates, etc. In this respect Edebohls' operation differed from that of Harrison; the latter did the operation of nephrotomy to relieve tension and cure what he suspected to be a suppurating kidney and nephrolithiasis, while Isreal performed the operation of nephrotomy to relieve congestion and in this way cure the patient of a neuralgia and hematuria; and from Pousson and others who operated for the same purpose. The question of bilaterality and unilaterality of chronic Bright's he said was fully solved and the opinions so far expressed that Bright's disease is unilateral, have not been backed by observations. He believed that, in order to have a true nephritis, it must be present in both kidneys, and it is a fact expressed by the pathologists that such changes occur in both organs, although they may vary in their course. He stated that among 500 autopsies made on those who had died of chronic Bright's disease, there was not one in which the

disease could be truly considered unilateral and only 14 where one kidney was more involved than the other. The next question to be considered was the correct diagnosis of nephritis and also how to differentiate between the various types of the disease upon inspection of a decorticated kidney. This was very important: any one who was experienced in post-mortem work must acknowledge the difficulty encountered in determining the pathological condition of the kidney by inspection and palpation of that organ either before the capsule is removed or afterwards, or even from the condition of the fatty capsule or the capsule propria. He said that Isreal had made the statement that chronic nephritis was more difficult to distinguish in the living, even after splitting the kidney, than in the dead. An examination of the capsule did not give an idea as to the condition of the kidney. This may be removed easily or with difficulty. At times there was found such a close relationship between the two capsules that they could not be separated on account of adhesions to one another. Furgeson, of Chicago, incises a piece of the renal tissue in order to facilitate diagnosis. The only procedure which would give a correct diagnosis he believed was to incise and remove a V-shaped piece from the cortical and pyramidal portions and make a microscopical study of it. He said that many cases of albuminuria and cylindruria were not, properly speaking, cases of Bright's disease. For example, a movable kidney may cause such a condition due to increased tension in the renal vessels as well as to the backward pressure upon the kidney of the urine through a kinking of the ureter. By performing a nephropexy the albumin and casts would disappear. If this disturbance in the circulation and function of the kidney was kept up long enough, a secondary nephritis might take place. He said that a nephritis of both kidneys might occur even when but one kidney was movable. In such an instance, a nephropexy might improve the condition and stay the process although it would not cure disease, if a true nephritis existed where certain pathological changes had taken place, and restore fully the function of the kidney as shown in the elimination of solids. He said Pousson claimed that the sympathetic relationship between the kidneys were somewhat similar to the relationship that existed between the two eyes and oftentimes operations upon one would relieve the same condition in the other. A time when the operation was considered to be imperative of course was when the patient was passing very little urine or none at all. He instanced a case by Whitacre, of Cincinnati, in which there was anuria, decapsulation of the kidney was followed by a return to the normal amount of urine passed in twenty-four hours. This patient was restored to perfect health Marx, of Kansas City, had also met with similar success. Rocky, of Portland, Oregon, operated upon a case of anuria, but the patient died of uremia. Freeman operated upon a patient who was passing a fair amount of urine and who was in good condition, but this patient died eighteen hours later of suppression. Gibbons, of Scranton, operated upon a case of Bright's, passing a fair amount of urine, and this patient died of uremia five days after the decapsulation and fixation of one kidney. After reviewing reports of such cases in which decapsulation had been performed, he said that no conclusions could be drawn, for we knew that decapsulation would cure anuria in some cases, while it induced it in others.

It was his personal belief that a chronic diffuse nephritis was the most unfavorable condition for operation giving a 75 per cent. mortality, although many of these patients were operated upon who were *in extremis*, some of them suffering from general anasarca to such a degree that after decapsulation, they drained for several days out of the incision in the lumbar region. He said that the benefit from the operation seemed to be from increasing the circulation within the kidney and that the circulation was increased by the formation of adhesions which brought a new fluid supply through these vessels. Some physicians argued that this increased circulation in the kidney could be compared with that in the lungs, *i.e.*, the anastomosis between the bronchial and pulmonary vessels. It was still a question with him whether it was better to decapsulate the kidneys partially and make them fast to the abdominal wall, or to fully decapsulate them and have them returned to their fatty capsule. He felt that the former method was the one of choice because of the firm adhesions which he had seen between the kidney and the abdominal wall, and the scant vascularity of the fatty capsules. It was not known just how much blood came from the fatty capsule, although Edebohls, at the Washington meeting of the American Association of Genito-urinary Surgeons, last year, had stated that he had seen in a recent autopsy quite large blood vessels which had penetrated the renal tissue through the newly formed capsule propria from the fatty capsules. Johnson, of San Francisco, experimented on dogs and attempted to show that the blood supply from the fatty capsule was very meager. Johnson had stated that the renal capsule consisted of two layers, the outer of which was the thicker. In decapsulation, it was the outer one that always came away, leaving the inner one lacerated but adherent. After decapsulation, a thin exudate appeared upon the surface which soon became a fibrous investment resembling the normal capsule in that it stripped readily, although it continued to grow thicker and more and more fibrous. In no case was there any considerable anastomosis between the renal and perineal blood channels. Even if the relation of the dog's kidney to the surrounding tissues was not the same as those in man, he said it was still probable that the reconstruction of the capsule was the same, and this reconstruction might indicate a renewal of the kidney tension in two months when the new capsule is thicker than the old, and recurrence of the symptoms in three and a half to four months when the new capsule is fully developed, and it might also account for the deaths that occurred after this period. Until there had been longer periods of observations he said that one might continue to think that when the new capsule forms, there will be a contraction with a diminution of the blood supply to that organ. The only chances of improvement after decapsulation would result from a period of freedom between the stripping off of the capsule proper and the consequent contraction of the new formed capsule.

It seemed to him that in cases of chronic Bright's disease, one should carefully study the conditions before advising operative procedures, and so long as the patient was fairly comfortable and getting rid of a sufficient amount of solids and doing well under dietetic treatment, waters, medicines, climate, etc., he believed such patients would do well without operating. If later the process advanced rapidly and there was fear of the heart action becoming impaired, he thought the time had arrived when operative interference should be advised. Some recover perfect health after operation, while in others the edema may persist. The urine is said to return to its normal condition in many cases, particularly in those in which the kidney was movable. He said it was interesting to know what operators mean when they say the urine was normal after the operation, whether it referred to the absence of such pathological manifestations as albuminuria and casts, or whether it referred as well to a return to the normal percentage of solids. In a number of cases the albumin and casts disappear after operation, while in others the albumin and casts persist, although less marked. Again, some pa-

tient showed no improvement at all in the condition of the urine. The best results in this line of work had been obtained in cases of movable kidney in which the albumin and casts were the only evidences of a Bright's disease, disappeared after the decapsulation. The statistics of 120 cases showed 16 per cent. cured, 40 per cent. improved, 11 per cent. unimproved; and of this list there were 33 per cent. deaths. These statistics were taken from an article read in Washington and were the result of a review of the literature and the answers of circular letters upon this subject. In cases of interstitial nephritis, he said the results appeared to be brilliant, when the albumin and casts disappeared from the urine, although the amount of solids secreted were not brought down to the normal. The mortality in cases of chronic interstitial nephritis unfortunately was 26 per cent.; in chronic parenchymatous nephritis it was 25 per cent.; in chronic diffuse nephritis 75 per cent. The results obtained were those computed by the reports of different men. The operation of decapsulation of the kidney for the cure of chronic Bright's he said was a new procedure and one that as yet had not been fully threshed out.

Dr. Ramon Guiteras said that many medical men now looked with favor upon the operation. He said that at the annual meeting of the Pennsylvania State Medical Society, Dr. Tyson read a paper on this subject; he and most of the men who discussed the paper expressed their belief in the operation. He said that many of the leading physicians in New York advocate the operation, as was evidenced by the discussion of the subject before the Society of Greater New York.

Dr. George M. Edebohls said that the subject under discussion was such an extensive one that it could not be properly gone over in a reasonably limited time. All were very much indebted to Dr. Guiteras for his untiring efforts in collecting such valuable material in such a painstaking way and analyzing the situation for the profession as he did in his paper to-night and in other contributions. He said that Dr. Guiteras had practically given them the substance of two papers previously published, giving the pros and cons, and these he had thoroughly ventilated. Dr. Edebohls said he himself had kept on with the work and was at present busy making a thorough investigation of the after effects and results of renal decapsulation for chronic nephritis. Even now there was sufficient material to enable us to speak of the immediate results of the operation, and he believed that very soon one would be able to state positively that a given case of nephritis gave a prospect of relief, improvement, or cure from the operation of decapsulation, or again that the idea of any operative measure had better be abandoned. To illustrate he referred to a man, thirty-five years old, who had nephritis for three or four years. One and a half years ago his physician called his attention to the possibility of relief by operation, but he decided to wait until he could learn more of the results. He waited, and while waiting retinitis albuminurica developed. Now, statistics show that 67 per cent. of cases of chronic nephritis live less than a year after retinitis aubuminurica becomes established. When the patient was told this he was ready to resort to any measure that offered him hopes of a longer life and asked for operation. The oculist told him it was too late, and his family physician that it was too early for operation in his case. Here were two directly clashing opinions which showed that the operation is looked upon from two widely different standpoints.

Dr. Edebohls said that he believed as soon as the clinical evidences established the fact that we were dealing with a case of *chronic* nephritis, then was the time to operate, for patients, under such conditions, always do better with the kidneys decapsulated. That was the sum and substance of his position at the present time. He emphasized the importance of keeping under observation all patients who had been operated upon. At the time he published his first paper on this subject he reported 19 cases, out of which number he had then lost traces of but 3; with the exception of these 3, lost sight of long ago, had been able to follow to date every patient he had operated upon, his cases now numbering 73. He said he was just about concluding the investigation to date of these seventy cases with a view to early publication of the final results. In this paper he intended giving a résumé of the entire work done so far, and throwing what light he could upon what could be expected from the establishment of a collateral renal circulation. He had had three opportunities to operate a second time upon kidneys upon which a prior operation had been performed, and in each operation he had found large blood vessels, all pumping blood toward the kidney, so large that at the second operation a large number of ligatures were required to control the bleeding. That gave him the idea that the increased blood supply to the kidney was the reason why kidneys the seat of nephritis were improved after operation. He said the clinical results had proven to be satisfactory, and this being so we could afford to await the full explanation of the *modus operandi* which the future would bring. He said that quite a number of observers had investigated this point, experimenting upon dogs and rabbits, and the majority of them had agreed that there was an abundant collateral circulation established, some of the new formed vessels even passing to the depths of the kidney substance and the papillæ.

Dr. Edebohls knew of only three observations of the human kidney as observed post mortem some time after renal decapsulation. Jewett, of Buffalo, had reported one, and although he failed to note any considerable new circulation, his publication fails to carry the impression or conviction of a thorough study having been made. In a second case, published by Cutler, of Boston, no mention is made of the presence or absence of a new circulation. The third was a case of his own, the patient dying of pneumonia four months after bilateral renal decapsulation. Dr. John H. Larkin, of the Pathological Department of Columbia University, had removed both kidneys in connection with their surrounding structures. A careful and painstaking study of a large number of serial sections, soon to be published in detail by Dr. Larkin, had established the fact of the formation of numerous new blood channels between the kidney and the tissues surrounding it, especially the perirenal fat. He said that Dr. Guiteras and himself had early in 1902, and independently of each other, studied and recorded the early history of the development of the surgical treatment of nephritis, and that the facts in relation thereto as detailed by Dr. Guiteras in his paper of the evening were substantially correct.

Dr. Howard Lilienthal said he had never performed this operation although he had watched with much interest the work of others. From the report of the cases by Dr. Guiteras he said it struck him that improvement came on too soon after the operation if that improvement was supposed to be due to the formation of a new anastomosis. One, two, three or four days he believed to be too soon to expect new vessels to be formed.

Nephropexy.—Dr. Berg reported a case upon which a nephropexy had been performed according to the method of Edebohls two years ago; about two weeks ago a second operation was demanded on account of a resinking of that organ. At the time of operation a very careful note was taken regarding the

condition of the blood vessels, their number, etc. He found that the fatty capsule was not more vascular that it was at the time of the first operation. He thought that possibly some might have been present at the lower pole of the kidney but none passed from the capsule proper into the kidney tissue itself. When incised there was no bleeding whatever. It was a perfectly dry condition.

Dr. Edward L. Keyes, Jr., said he had not performed this operation of decapsulation except in one instance, and there was nephroptosis and catarrhal pyelitis with attacks of renal colic. The kidney was stitched in proper position and then the albumin and pus disappeared from the urine. In three other cases operation had been performed for suppuration in the kidney; besides this suppuration there was chronic interstitial nephritis. In two cases the kidney was incised under the impression that stone was present, but none was found although in one there was found a hard nodular scar suggesting the previous existence of a stone. In both these cases in which the kidney was incised the casts and albumin disappeared from the urine after the operation. One of these cases was followed but a few months, the other about five years. In another case a stone was supposed to be present; both kidneys were incised after splitting the capsule and even needles were stuck into the kidney in search of stone, but none was found. After this maneuver the albumin and casts disappeared from the urine. This was certainly two years ago, and the urine remained free from evidences of inflammation. What caused the relief he could not say. He said he had only once cut down upon a kidney after nephrorrhaphy had been done and he had found dense scar tissue, but in no place was it filled with blood vessels.

Dr. John Van der Poel said that he had been given an opportunity of examining a kidney three weeks ago after partial splitting of that organ and search for stone had been performed. The adhesions which had formed were quite dense, more so than one would suppose, and were well formed. Like Dr. Lilienthal he had never had the opportunity of splitting the kidney for nephritis, but he would do the operation when the opportunity presented itself, especially after hearing the results that had been obtained by Dr. Edebohls and Dr. Guiteras. He believed this operation appealed to the surgical more than to the medical side of the profession. The medical profession were, as a rule, loath to allow the patient to fall into surgical hands until the operation was more definitely and better understood. Medical cases at present were not, as a rule, transferred from the medical to the surgical wards until certain evidences of so-called surgical complications appeared, that is, pus in addition to the albumin, and casts. When the results of the operation were better understood by the profession at large it would give surgeons more opportunities for satisfying themselves regarding the true merits of the procedure.

NEW YORK ACADEMY OF MEDICINE.

Section on Pediatrics.

Regular Monthly Meeting, held January 14, 1904.

The President, David Bovaird, Jr., M.D., in the Chair.

Diabetes Insipidus.—Dr. E. S. Sill presented a case of diabetes insipidus in a child of six years. According to the mother's reports when the child first came under observation, it was passing five to twelve quarts of urine in a day. During the last three or four days this quantity has been reduced to about eight quarts per day. The patient perspired very little, the mouth was constantly dry and there was an almost constant thirst. The urine was of pale straw color, specific gravity 1.005, containing in the twenty-four hours from eighteen to thirty grams of urea. The child is being treated with fluid extracts of ergot, fifteen minims three times a day and is apparently improving. Altogether some eighty-one cases of this affection have been reported in children. The most important element in the history is heredity, the patients usually coming of highly neurotic parents. It occurs much more frequently in males than in females. In one case the etiological factor seemed to be the drinking of large quantities of ice water. In a certain number of cases lesions of the solar plexus were found. Syphilis was suspected in a number of the cases. An interesting effect of diabetes insipidus reported by several observers may be a retardation of growth. No other abnormal ingredients are ever found in the urine and sometimes the only symptom present is the passage of large quantities of water. At times the diagnosis may be made by the harsh dry skin and the rough feel of the integument.

Prognosis.— The prognosis of the disease as regards life is good, though the affection is usually chronic. Out of 77 cases followed for a number of years, 16 recovered and 14 proved fatal. Forty-seven of the patients improved either as the result of treatment or nature's effort to restore proper metabolism. In children particularly the thirst becomes insufferable if water is kept from them and, in a number of reported cases, they have, when confined in rooms, drunk their own urine. This is, however, as a rule, only very slightly different from water. The children are usually nervous and there is a history of nervous symptoms of other kinds before the development of the diabetes insipidus. Besides the ergot, valerian is said to be of service in the treatment of the disease, especially in the form of valerianate of zinc.

Dr. Sarah Welt Kakeles reported two cases of diabetes insipidus that had been under her observation in recent years. The first occurred in a girl 9½ years of age, who seemed perfectly healthy except for this symptom and who was under observation for three years. During this time nearly every drug that might possibly help the condition was tried except opium and atropine, which have, in Dr. Kakeles' opinion, a constitutional effect that is very undesirable in children. The only drug from which any satisfaction was obtained is antipyrin. The child passed from under observation for a time and later developed oculomotor palsy with distinct ptosis. Nine months later, she was found to be suffering from true diabetes mellitus. The second case was a boy of about five years of age who was passing about ten or twelve quarts of water a day. When it is remembered that this represents from 20 to 25 pounds and the boy weighed not much more than 40 pounds, and that therefore he was passing two-thirds of his weight in urine every day, some idea of the disturbance of metabolism can be appreciated.

Diabetes Insipidus Under Two Years of Age.— Dr. James J. Walsh reported a case of diabetes insipidus occurring in a child aged about eighteen months. The little one, who came from a very nervous family, was strong and healthy-looking, but fell out of bed one morning and during the next day or two developed frequency of urination and an almost insatiable thirst. Examination of the urine showed a specific gravity of 1.003 with no albumin and no sugar. It was hard to decide how much urine the child was passing, as it was usually passed in the napkins that had to be worn, but a conservative estimate seemed to be between five and six quarts. The little one could not talk, but soon made its desire for water known by making a clucking noise with the mouth and insisted on being given to drink many times during the night. In this case the symptoms gradually subsided and after about three months seemed to

disappear entirely. Since then there has been no recurrence.

Addison's Disease and Frequency of Urination.—Dr. Charles Hermann reported a case of Addison's disease in which the most prominent symptom at the beginning was marked frequency of urination. Other symptoms, however, called attention to the condition of the suprarenal bodies and suprarenal extract was administered. As a result the frequency of urination gradually disappeared. It seems possible that the suprarenal extract may be of service in the treatment of diabetes insipidus.

Bronchopneumonia.—Dr. William P. Northrup read a paper on the course and symptoms of bronchopneumonia. There are three forms of the disease, according to the three forms of resistance which are found in the human being. The first is hypostatic pneumonia, which occurs in the least resisting and in children, particularly in marantic patients. Then there is the true bronchopneumonia, in patients who are more resistant but who are handicapped by the existence of some previous affection or condition. Finally, there is lobar pneumonia, a true primary disease, usually benign and in children is the pneumonia of the better class of practice. Hypostatic pneumonia is one symptom of approaching death. Bronchopneumonia usually occurs after infections, but may occur after nasopharyngeal catarrh or after colds and the like, which are usually but wrongfully considered not to be infective. During the last three years Dr. Northrup has seen 167 cases of primary bronchpneumonia in the autopsy room. None of these occurred after any of the exanthemata. Most of them develop while the children are under the care of foster mothers in the tenement houses and the previous course of the case could not be learned. It is the exception, however, in autopsies on children to find the lungs entirely free from pneumonia lesions, even where the death is from some other cause. One-third of the cases of bronchopneumonia are said to be primary, but this is too small a proportion for institutions. It must not be forgotten that acute coryza tracheitis, or cold with fever, may precede the pneumonia and then of course the affection must be considered secondary and not primary.

Seasonal Incidents.—Two-thirds of the cases occur between December and May. The male patients suffering from pneumonia, compared to females, are as five to four. It must be remembered, however, that there are more males than females in foundling asylums. Seventy per cent. of the cases observed occur under two years and it is evident that changes in the weather with the production of the slight infectious diseases known as colds and extension of this process into the lungs is responsible for the pneumonia. Vomiting occurred in only six out of 26 cases carefully noted for this symptom. Chills occurred in but two cases. The respiration is frequent, but so also is the pulse and the respiration. A very characteristic symptom is the cry with an abrupt end due to the fact that the child suffers when it uses its lungs to expel air. In a word there is expiratory discomfort. This is probably what causes the characteristic grunt which experienced nurses look upon as an almost infallible sign of pneumonia. Pulse respiration ratio is, of course, disturbed. Usually it is about one to three in bronchopneumonia, though the respirations may become so rapid as to be one to two.

Physical Signs.—On inspection there is an almost characteristic retraction of the upper parts of the lungs. Percussion does not give much information, but because of its value in lobar pneumonia it is looked upon as one of the most important physical diagnostic methods. Auscultation discloses subcrepitant and fine râles over the affected area. This is practically conclusive proof of the existence of pneumonia. The characteristic symptoms may not be recognized at the beginning. The foci of the disease may be so scattered as not easily to be detected. The development of the disease then must be awaited in order to make the diagnosis.

Duration of the Disease.—The average duration is about thirteen to fourteen days. Some of the milder cases are entirely well at the end of four or five days. The severer cases in weak children may run on for two or three months. These produce chronic changes in the lungs and there is apt to be a suspicion of the presence of the tubercle bacillus. The end is usually by lysis. Crisis is exceptional, occurring only in nine out of 167 cases. Severe forms of the disease last longer and may give such symptoms as Cheyne-Stokes respiration. Cough is apt to be dry, nagging and irritative rather than productive. Gas distention of the abdomen always makes the conditions serious because of interference with respiration and is especially important in weak children and slow running cases.

Differential Diagnosis.—Under three years of age almost any grave illness must be suspected of being bronchopneumonia and care must be taken to exclude it before the doctor's mind is made up. Cough is not essential to the diagnosis and the temperature chart is of very little value, as bronchpneumonia may occur without fever. The most important sign is the disturbance of the pulse respiration. This occurs quite frequently in measles, and measles is apt also to be accompanied by bronchitis, easily permitting a mistake of diagnosis, but it must not be forgotten that measles also not infrequently leads to bronchopneumonia. Scarlet fever is seldom accompanied by disturbance of the pulse respiration ratio. Any infection of the respiratory passages may be followed by bronchopneumonia. A distinction is sometimes made between disseminated pneumonia and capillary bronchitis. The distinction, however, is of no practical value, as it is impossible to separate the two diseases from one another, small foci of bronchopneumonia, being almost surely present and the treatment and prognosis of the two disorders is the same.

Diphtheria and Bronchopneumonia.—Sometimes it happens that bronchopneumonia is diagnosed when diphtheria is the real agent at work. It is the laryngeal stenosis which gives rise to the supposed bronchial breathing that leads to the mistake. This mistake has happened even in experienced hands. Meningitis is distinguished from bronchopneumonia by the comparatively slow pulse, the slow respiration and the tendency to coma. While the shoulders and neck are stiff in pneumonia, they have not the rigidity which is noticed always in meningitis. Meningitis may further be distinguished finally by lumbar puncture.

Treatment of Pneumonia.—Dr. William P. Northrup said that the first principle in the treatment must of course be not to treat the lesion but the patient with the lesion. As bronchopneumonia is usually a secondary disease, the sufferer from it is twice a patient. This secondary infection is due to the fact that the lymphoid tissue and connective tissue in young children is little resistive. Bronchopneumonia should be considered as a pulmonary erysipelas or cellulitis. This thought makes for care in its management by recalling its seriousness and also shows how uncertain the prognosis is. As it is an affection of the lungs it is important that the air that the patient gets should be pure. Only a limited amount of air can be absorbed and that must be capable of doing as much work as possible. Alonzo Clark, who first permitted air to enter a typhus fever ward, had the heroic courage of a magnificent conviction.

Prophylaxis.—Under certain conditions prophylaxis can be more or less assured. Measles is not infrequently followed by diphtheria, and a succession of these

two diseases is almost sure to give rise to some bronchopneumonia. If the diphtheria can be prevented, usually the bronchopneumonia danger will not be so great. Hence measles patients, at least in institutions, should be immunized against diphtheria. During the course of the infectious fevers in childhood, if children are allowed to breathe cool fresh air, a window in their room being open toward the south with the bed in the middle of the room and the eyes away from the light, then bronchopneumonia will seldom develop. When bronchopneumonia itself is severe this same treatment is the best possible fundamental principle, especially in splenic cases. The room may be so cold that nurses have to wear overcoats and gloves. The little patients are not any more likely to take cold than they would be if suffering from erysipelas. Once during the Civil War the hospital in which a number of patients suffering from pneumonia were, was burned down. The papers gave heartrending accounts of the suffering of the soldiers who, in the midst of winter, had to be treated as best they could wherever they could be laid after removal from the hospital. Most of them had no other protection than a canvas spread over some barrels. The papers said that all of them would die. As a matter of fact, they all recovered. This is quite different, of course, from the exposure of a débutante, for instance, who, after breathing the secondhand air of a crowded room with resistive vitality lowered by overfeeding and underdressing, comes suddenly out into the air and thus catches cold. A fever patient will not catch cold in bed.

Water and Unbreathed Air.—Water in small quantities must be given frequently and will be found very conducive to quiet and rest. It will not infrequently be found that this is forgotten or not sufficiently attended to. The physician must protest against the crowding of the patient's room by friends who are depressant rather than encouraging. In a recent case Dr. Northrup found a tearful grandmother, two old women cronies of hers, a gas fixture and a gas stove, four grown sons and a pug dog. Besides this there were two doctors and yet, though the room was not very large, the little patient was somehow supposed to be getting its portion of air.

Drugs.—The first and most important drug is castor oil, as cleansing of the intestines is very necessary. Avoid the use of syrups and all fermenting foods. As has been well said, have air everywhere but not in the abdomen. Whenever there is meteorism, high rectal infusion should be employed, for which warm salt solution is the best. With regard to the antipyretic drugs, none of them will be employed with benefit and all of them will do harm.

Treatment of Fever.—As an antipyretic water should be used with discretion, but the fever is now the main index of the seriousness of the disease, better than a careful theremometric chart is for the physician to stand for ten minutes at the foot of the bed and carefully inspect the patient. Whenever there is restlessness a cold cloth may be applied to the forehead and temples and also to the wrists. This will refresh the patient much better than an ice cap. If the little patient has a plentiful supply of hair the cold from an ice cap will not penetrate very deeply. A polar bear sleeps very comfortably on an ice pillow. Notwithstanding the depressant chronic character of the disease, stimulants are not always needed. The circulation, however, must be maintained. It is always the rule to find children suffering from pneumonia with cold clammy feet, though their head is too hot. Hot footbaths should occasionally be given with great care, the tub being placed under the clothes. An excellent stimulant is a hot saline, which will also promote general comfort.

General Precautions.—Children will be much more comfortable if they are not asked to take food and drink too often, this only disturbs them and rest is extremely important as a part of the treatment, there is almost more danger of overfeeding than of underfeeding. Another precaution is to avoid any constriction of the chest, consequently there must be no poultices and vests and bandaging. These things only serve to macerate the skin and make the child restless. While the child is asleep it must not be disturbed for any reason. Avoid steam and the use of canopies, since they rob the child of oxygen. When pulse and respiration are both very much disturbed and there is a tendency to inflation of the abdomen the feet will often be found cold and the indication is for stimulation. The dusky face with severe coughing may prove to be no more than the effect of cold feet. Whisky and strychnine are the only two drugs that deserve to be mentioned.

How to Kill a Pneumonia Patient.—Directions have been given so often as to how to save a pneumonia patient and consultants so often find these directions glaringly violated that it is thought that perhaps directions how to kill a pneumonia patient may prove of service. Light two or three gas jets in the room and perhaps also a gas stove. Have at least eight friends spend most of the time in the room. Wrap the child up tightly in a poultice, and if the temperature is from 104° to 105° F., renew the poultice and make it tighter than before. Fill the room full of steam, surround the bed by blankets, close the windows hermetically, and then perhaps you have done everything possible to keep the child from recovering from its pneumonia. Perhaps, however, the free administration of some coal-tar products may be suggested as a *coup de grace*.

Hygienic Treatment.—Dr. Emmet Holt said that it is gratifying indeed to hear that the modern physicians are insisting on the hygienic treatment of pneumonia. Students are now taught that pneumonia patients recover and are not cured, though just the opposite teaching used to be the rule. Not all pneumonia patients are in the same class and not all should be treated the same way. A little patient six weeks old with respirations eighty and fine râles all over the chest, wheezing, cyanotic, prostrated, is not in the same class with a patient whose temperature is 105° F. and whose condition is reasonably good otherwise. The old time ideas of stuffing cotton into the windows in order to prevent the slightest amount of fresh air must, of course, be preached and practised. On the other hand cold for delicate patients is almost sure to do harm. It must not be forgotten that it is delicate marasmic children that suffer most from bronchopneumonia and they will not react well to air so cold that the nurses must wear gloves and fur coats.

Steam Valuable Adjuvant.—Dr. Holt believes that steam may sometimes be a valuable adjuvant to treatment, especially in the cases of weakly children. When there is continual irritation and a tight, dry wheezing cough with many râles, then steam is the most efficient agent the practitioner has at hand. Dr. Holt's experience in this matter justifies him in saying authoritatively that steam, far from doing harm is a very valuable factor for the relief of the respiratory symptoms.

Death Rate.—The death rate in institutions is supposed to be more than one-half the patients. In private practice, however, the death rate of bronchopneumonia is not very high. In the last two years Dr. Holt has seen 119 cases, 92 of them in consultation. A fair proportion of them were severe, some of them were actually desperate cases. Seventy were lobar pneumonia and of these 61 got well. Twenty-one of these were under two years of age. As a rule one entire lung was involved in these cases. Forty-eight of the cases were broncho-

pneumonia and 41 of them recovered. Most of the fatalities were under one year of age and a great many under six months. There is evidently a strong tendency to get well except in very young infants.

Feeding After Air.—Next to air Dr. Holt considers that feeding should be emphasized. Be careful of overfeeding early in the disease. There is a temptation to think that the patient is in for a siege of illness and that the more nutrition that he has the better, but this is a mistake. With regard to the reduction of temperature it should be tried only when absolutely necessary and by whatever means causes the least bother to the patient. Especially must there be no rule that whenever the patient's temperature is at a certain mark he must be bathed. If they are sleeping they must not be awakened for any reason. Physicians' children are much more apt to suffer in this matter than others.

What Not To Do.—Dr. Floyd Crandall said that it seems important to emphasize the things not to do in pneumonia. Overstrenuousness must be avoided. It wears the patients out like the treatment of diphtheria before the introduction of antitoxin. Syrups disturb digestion and take away the appetite. The taking of the temperature often disturbs children without giving any very definite information. Especially is this true if the temperature is taken per rectum. Children rebel and cry. Dr. Crandall emphasizes the fact that comparatively few deaths from bronchopneumonia occur in private practice, notwithstanding the expectation in this regard from what is known in hospital practice.

Fresh Air a Panacea.—Dr. Knopf said that he was delighted to find the open-air treatment suggested for an acute pulmonary disease, as it is now so universally practised for chronic cases. In tuberculosis, however, patients are not plunged into cold air at once, but are allowed to grow accustomed to it, the same thing would seem to be eminently suitable for children. One window should be open at a time, so as not to do harm. Dr. Knopf believes that the gentle counterirritation of cupping is a good means of lessening the irritability of pneumonic tissue, especially lessening the congestion at the beginning of a pneumonia, and thus preventing it from being as serious as it otherwise would be. Drugs are not of much importance and yet there must be no therapeutic nihilism. Jacobi has found digitalis good from the beginning. Whisky should be used whenever there is depression. The coal-tar products have killed many patients. It must not be forgotten that the creosote ordinarily employed is a coal-tar product.

So-called Primary Bronchopneumonia.—Dr. Chas. G. Kerley said that so-called primary bronchopneumonia often follows a cold. This must be remembered for the treatment of ordinary bronchitis in young children must always be considered important. No bronchitis should ever be called mild because children are so lacking in resistance. Reduction in the food is very necessary and the milk should be cut down one-half. In order to insure fresh air, patients should be removed for an hour at least each day to another room. Cold air is good for most patients, but not down to forty degrees for young children. When the respirations are very high and the cough irritating, the canopy tent is of great service. In these conditions cold air would increase the spasm.

Spasmodic Bronchitis.—Dr. Walter Lester Carr said that in spasmodic bronchitis or bronchial irritation, steam is of service. It makes the secretion more abundant. Hot water bags to the feet will often so stimulate the patient as to make the secretion freer. The child's general condition must be watched and no overdistention of the abdomen allowed to occur. No syrups should be employed in the treatment of the affection.

THE JOHNS HOPKINS HOSPITAL MEDICAL SOCIETY.

Stated Meeting held February 15, 1904.

New Tube for Uterine Cultures.—Dr. Little exhibited this instrument, devised by himself, as a modification of the Döderlein tube. The latter is perfectly satisfactory when the lochia flow freely and there is no difference between the cervix and fundus as to bacterial contact. The tube is, however, somewhat difficult to work, the rubber portion often kinking in an annoying manner. In Dr. Little's modification the end of the piston is formed by an ordinary elastic band which is attached to a thread running down the tube and lies loose in the uterine cavity until drawn into the glass tube by the operator.

So-called Rheumatoid Diseases.—Dr. Goldthwaite read this paper. His attention to this class of cases had been called out by the swamping of his clinic by chronic cripples unloaded on him from the general practice of Boston. Study of the conditions had led him to a new classification of joint-affections based on pathological conditions: (1) Dry, hyperemic, relaxed or villous arthritis; a local condition characterized by congestion and folding of the joint membranes; occurs often in the knee and frequently accompanied by flatfoot. Treatment is by massage and prognosis is good. (2) "Rheumatoid" (better, atrophic) arthritis. A progressive condition characterized by swelling, followed by atrophy of joint and periarticular structures. (3) "Osteoarthritis" (better, hypertrophic arthritis); a very common form characterized by Heberden's nodes, thickening of cartilages and of bone; essential characteristic is hypertrophy; true anchylosis rare, but motion may be restricted. When spine is affected pressure pains are common. (4) Infectious arthritis. The absorption of any toxin may give a joint trouble; the absorption of the organisms themselves gives a specific arthritis. Rheumatism, since it is quite similar in its pathology to other infections, is probably due to unknown organisms. The pathology and treatment of all those forms are similar and they are subdivided into groups according to the infecting organism. In typhoid fever we may have the typhoid spine (due to absorption of the toxin) or a bone abscess (due to the organisms themselves). (5) Gout. Here there is a deposit of sodium urate and a constant bone change. The treatment of these conditions varies with the form. In the villous type treatment is expectant unless it is plain that removable villi are present. In the atrophic form local and general stimulating treatment modify the condition, perhaps even arrest it. In the hypertrophic form protection of the joint is indicated in the acute stage and later excision of the nodes if they are interfering with function. In the infectious form the same line of treatment is indicated as would be used in fighting a septicemia. Baths and depressing drugs should be avoided and salicylates are only indicated in the early stage, giving way later to stimulating drugs.

Dr. Painter discussed the pathology of these conditions. In the villous form there is a swelling of the capsule, a hypertrophy of the blood vessels, and an infiltration with red blood corpuscles. Little fluid is present. The cartilage shows a striation; it is thin and does not glisten normally. In the hypertrophic type there is no thickening of the capsule and the cartilage, though thickened, does not become striated or lose its glistening appearance. In the atrophic form the bone becomes smaller, the trabeculæ diminish in number and size and there is a deposit of fat in the intertrabecular tissue. In the infectious forms there is a general infiltration of all the elements more symmetrical than in the villous form. By MacRudden's new method the

metabolism has been estimated in these rheumatoid conditions and it has been found that the Ca and Mg in the feces of these patients is double that in normal feces and double the amount ingested.

Dr. McCrea said that the following classification of arthritis had been adopted at the Johns Hopkins Hospital: (1) Infectious cases with definite bacterial limits; (2) gout; (3) rheumatic fever—probably several organisms are concerned; (4) rheumatoid conditions, characterized by atrophy and hypertrophy which represent different manifestations of the same disease and are due to the toxins of many organisms. (5) Still's disease—infectious, accompanied by enlarged spleen. There is a definite series from this arthritis deformans of children up to the adult form. Dr. Finney said that he had removed lipoma arborescens from many joints but that he had done it in a half-hearted way. Since hearing Dr. Goldthwaite's paper, however, he would attack these cases with more confidence.

Dr. Emerson said that diminished Ca and Mg conological conditions seen in gonorrheal joints—from those cases with little fluid and no joint destruction to those with great destructive changes. Dr. Bloodgood said that this variation in the pathological picture bears a pretty close relation to the duration of the disease. In infectious arthritis opening and irrigating the joint may cause the process to recede and give a good functional result, but later scar tissue forms and poor function results. Early recognition is therefore important.

Dr. Emerson said that diminished Ca and Mg content in the feces had been observed in other conditions (diabetes) in which there was no bone change.

Dr. Goldthwaite, in closing the discussion, said that the atrophic and hypertrophic forms of arthritis, though different diseases, might coexist. They appear, however, at entirely different times of life. In gonorrheal joints he advised waiting until there were signs of infiltration of the capsule and then opening and irrigating. The ultimate results of surgical interference in rheumatoid cases depend on the particular case. In one of his patients, who had a mass of villi in his knee-joint like a bag of earth worms, the villi were removed and the function of the knee has been greatly improved. The cases can always be helped some.

MEDICAL AND CHIRURGICAL FACULTY OF MARYLAND.

Section on Clinical Medicine.

Stated Meeting, held February 19, 1904.

Laminectomy for an Intradural Spinal Tumor.—Dr. Cushing showed two cases. The first had been admitted to Dr. Osler's service at the Johns Hopkins Hospital complaining of disability of gait and pain in left arm—paroxysmal in character, not severe, increased by sneezing, etc. One year later sensory symptoms developed on the right side. The diagnoses suggested were tuberculosis of the bone reaching the cord, chronic cervical pachymeningitis, syringomyelia, tumor, and hematomyelia. Symptoms pointed to a lesion of the sixth or seventh cervical segment. Laminectomy was done, an intradural spinal tumor (fibrosarcoma) was found and removed. All symptoms disappeared immediately and the man is now quite well.

Left-sided Paralysis.—The second case had been shot in the forehead two years previously developing later left-sided paralysis and facial twitching with a difficulty of motor speech. Several operations were done and finally a bullet was removed. Soon after the patient developed epileptic convulsions without auræ or Jacksonian characteristics. The patient was also too easily amused and cried too easily—suggesting a frontal lobe lesion. An X-ray showed the bullet. A Wagner flap was turned down, five adhesions broken up, and the scar of the bullet tract and the bullet itself found and removed.

Pseudobulbar Paralysis.—Dr. Hirschberg read a paper on this subject. This condition was first described by Joffroy in 1872 and characterized by bulbar symptoms without demonstratable lesions in the bulbar nuclei. The symptom-complex may indeed be due to various pathological conditions. Gradual progression, electrical changes and tremors distinguish the Duchenne type of bulbar paralysis from the false type; atrophy, distinguishes polioencephalitis; recovery, distinguishes myasthenia gravis. Pseudobulbar paralysis occurs after two apoplectic attacks, shows normal electrical reactions and more or less marked mental changes(aphasia, involuntary laughing and crying, etc.). There is often a histry of lues. Arteriosclerosis of the basilar vessels and foci in both hemispheres have been found pathologically. Dr. Hirschberg's case complained of poor locomotion and gave a leutic and marked alcoholic history. Two attacks of apoplexy had occurred and after the last both legs and arms had been paralyzed, memory had been poor and some delusions present. Voice was weak and hoarse, palate reflex gone on left side. No improvement had occurred under specific treatment.

Dr. Thomas said that this condition was not an entity at all but a symptom of varied pathological conditions and the name "Pseudobulbar Paralysis" was a poor one. One apoplectic stroke leaves no palsy of these muscles, because they are bilaterally represented; but after a stroke affecting each side the condition occurs.

Multiple Pelvic Fracture, with Rupture of Urethra and Bladder.—Dr. Harrison reported this case. The man had been admitted to the hospital badly shocked and suffering with great pain, paralysis of the legs, desire but inability to urinate. Catheter obtained only blood. Operation revealed multiple fracture of the pelvis, and extraperitoneal rupture of the bladder and a rupture of the urethra—the prostatic portion having been stripped out of the prostate. Tube and gauze drainage were inserted suprapubically and peritoneally; no suture of bladder or urethra was done. Recovery was good. Patient now passes urine six or eight times during the day, sometimes not getting up at all at night. Passes a No. 26 sound with ease and there is no bleeding. He has no erections (injury to pudic nerve ?) but desire is present and ejaculation occurs on masturbation.

BOOK REVIEWS.

Infectious Diseases, their Etiology, Diagnosis and Treatment. By G. H. Roger, Professor Extraordinary in the Faculty of Medicine of Paris. Translated by M. S. Gabriel, M.D. Lea Brothers & Co., New York and Philadelphia.

The time has seemed ripe when the vast number of researches on the infectious diseases might be brought into a comprehensive synthetic whole, and Roger has made an attempt to do so and has succeeded most admirably.

The work is a truly philosophical one that is both stimulating and practical. General laws rather than small details are considered and the subject of microbic growth, poisons and the body's defensive agencies are set forth in a new light that compels thought and inspires new ideas.

The work is a large one, over twenty-four chapters occupying eight hundred pages. General Considerations, Characters of Pathogenic Bacteria, Etiology of Infections, Pathology of Infections, Microbic Associa-

tions, Defense and Reactions of the Organism—are the titles of the earlier portions of the volume. Then follow considerations of some of the effects. Suppuration, Gangrene, Septicemias, Nodular Infections, Cellular Degenerations and Fever being discussed in these chapters.

In four further chapters the influence of Infections on the various parts of the body is discussed from entirely modern viewpoints and the evolutions and consequences of infection further treated.

From the therapeutic side the author takes up the study of the Mechanisms of Immunity, and in three final chapters deals with the Therapeutics of Infectious Diseases—their Hygiene and Prophylaxis.

Truly this is a desirable acquisition to the English-speaking student—made most attractive by the publishers' best art.

Atlas of the External Diseases of the Eye, including a Brief Treatise on the Pathology and Treatment. By Prof. Dr. O. Haab. Second Edition, Revised. Edited by G. E. de Schweinitz, A.M., M.D., Professor of Ophthalmology in the University of Pennsylvania, etc. With 98 colored lithographic illustrations on 48 plates. W. B. Saunders, New York, Philadelphia and London.

The second edition of this book can only elicit the unqualified commendation given on its first appearance. It is a remarkable achievement, both as a work of art and as a scientific production. The thoroughly scholarly text is illuminated by the illustrations as is seldom the case. A certain amount of new matter, together with eight colored plates, have been added to this edition. The book, with its plates, is not only to the credit of the author, but is truly an achievement with which the publisher may well be satisfied.

Diseases of the Eye. By L. Webster Fox, A.M., M.D., Professor of Ophthalmology in the Medico-Chirurgical College of Philadelphia. With five colored plates, and 296 illustrations in the text. D. Appleton & Co., New York.

The author offers this treatise as the outgrowth of his experience as a lecturer during the last ten years. He states that it is his object not to supply a mere ephemeral sketch of existing information on ophthalmology, but to provide a digested summary of the known facts. The publisher's work has been admirably done. Many of the illustrations are familiar as having been borrowed, doubtless, by the courtesy of the publisher from better known books, without recognition, it may be stated. As a statement of personal opinion with regard to many mooted points the book has a certain interest, but it can hardly be called well-digested when seventeen operations are mentioned for the relief of ptosis while toxic amblyopia is dismissed with a few sentences, and the relation of ocular disorders to constitutional diseases and disorders of the nervous system occupies two pages. There are many statements which might be considered inaccurate or misleading, which it is not necessary to specify. But in a certain sense the book will undoubtedly appeal to those for whom it is intended, because it contains allusions to many of the most recent procedures. In this sense it is certainly up to date.

Practical Gynecology. A comprehensive Text-Book for Students and Physicians. By E. E. Montgomery, M.D., LL.D., Professor of Gynecology, Jefferson Medical College, etc. Second Revised Edition. P. Blakiston's Son & Co., Philadelphia.

It is probable that more books have appeared in the last few years on gynecology than on any other similarly restricted field of medicine and yet the editions of each keep multiplying with a regularity that must at least be gratifying to their authors and publishers. The popularity of the present volume is easy to understand, however, for it is certainly one of the most attractive and readable in use. The work of revision has produced notable changes in arrangement, and in rewriting and keeping pace with more recent operative procedures, seventy pages have been added. In the section on the operative treatment of retroversion the author describes many of the newer operations and also a method of performing ventral suspension differing from his former practice.

The illustrations form a conspicuous feature of the book and many new ones have been added to this edition. Nearly all are original and their uniformity of execution is most pleasing. The numerous drawings of microscopic sections are particularly well done and serve to show how much superior for teaching purposes good drawings are to the poorly reproduced photomicrographs which have lately become the fashion in illustrating.

All in all, this is a most satisfactory work, modern in teaching and practical in application, with the subject-matter well arranged and attractively presented.

A Treatise on Orthopedic Surgery. By Royal Whitman, M.D., Instructor in Orthopedic Surgery in the College of Physicians and Surgeons of Columbia University, New York, etc. Second Edition. Lea Brothers & Co., Philadelphia and New York.

This is in every way a most valuable and agreeable book in which the soundness of the author's views as to pathology and treatment is equaled only by the wealth and appropriateness of the illustrations. Most of these are from photographs and have been prepared with a skill and discrimination that leave little to be desired.

In this edition the work has been revised and some new matter and illustrations added, though no important changes seem to have been required.

Perhaps in no other department of medical writing is a profusion of illustrations so necessary as in this, where countless forms of apparatus and their methods of application have to be described, and too much cannot be said in praise of the figures in this book, which really illustrate and show unusual thoughtfulness and care in their selection, preparation and execution. All the newer procedures, such as the Lorenz method of reduction for congenital dislocation of the femur are clearly described and figured, while the author's eminence in his specialty renders the book not only complete and up-to-date, but also authoritative.

The Four Epochs of Woman's Life. Maidenhood, Marriage, Maternity, Menopause. By Anna M. Galbraith, M.D. With an Introductory Note by John H. Musser, M.D. W. B. Saunders & Company, Philadelphia, New York and London.

Dr. Musser's introduction runs thus: "It has been well said that the bulwarks of a nation are the mothers. Any contribution to the physical, and hence the mental, perfection of woman should be welcomed alike by her own sex, by the thoughtful citizen, by the political economist, and by the hygienist. Observation of the truths, expressed in a modest, pleasing, and conclusive manner, in the essay of Dr. Galbraith, contribute to this end. These truths should be known by every woman, and I gladly commend the essay to their thoughtful consideration."

This should of itself be an excellent commendation of the book, and physicians will find it an excellent instrument for giving important information easily, thoroughly and without any possibility of offense.

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ORIGINAL ARTICLES.

THE INDIVIDUAL EQUATION OF THE PATIENT IN SURGICAL OPERATIONS.*

BY W. L. ESTES, M.D.,
OF BETHLEHEM, PA.

ASEPTIC methods have so minimized the immediate danger of surgical procedures, and modern surgical technic has given the surgeon such facility in operating, that nowadays operations are undertaken lightly and performed with comparative safety, and with very little anxiety as to the recovery of the patient from the operation itself, in the majority of cases. Occasionally it happens, however, that a patient dies upon whom an operation has been done of a kind which the surgeon has performed for others many times without any serious result, and after what seems a perfect carrying out of a thoroughly well planned and an ideal operation; also without any manifest contraindication on the part of the patient.

I am sure every surgeon who does much operative work has had occasion to ask himself in a given case, why did that patient die when so many other patients have recovered who seemed in no better condition and who in many instances were actually less able to stand the operation than he was? I believe the answer to this question is, "It was on account of the individual equation of the patient." The fact that there is an average result among a large number of individuals operated on naturally suggests that there is an average vital personality. There are many exceptions to this rule, however. I think surgeons ought carefully to consider these possible exceptions in undertaking any operation of expediency and bear them in mind in prognosing.

It is my purpose to call attention to a few conditions which may affect the reaction of an individual to a traumatism and which may vitally affect the result of an operation. The first of these conditions is heredity. Barring the exanthemata, in which class I may for the instance place syphilis, it is probable that no disease is actually transmitted as such, from parent to child. It has been abundantly proved that individual proclivities both of physique and disposition are transmitted to children from parents (there are probably just as many instances of atavism in the matter of physical qualities as there are in physical appearances and mental qualities of an individual). There is further much evidence to show that there is a chemical individuality which may be transmitted as a family trait. The well-known instances of hemophilia belonging to certain families for a number of generations would indicate this. It is of great importance then for the surgeon to find out the family history of his patient.

The manifestations of heredity in the second generation of syphilitic, of tuberculous and of cancerous families are so nearly related that it seems in some instances they are interchangeable. That is to say, an individual whose parents have had syphilis seems as much disposed to cancer as one whose parents have had cancer. Such an inheritance also renders the child as liable to tuberculosis as if he inherited the tendency directly. I am not able authoritatively to speak in the converse, that is, I have not sufficient evidence to show that the tuberculous and cancerous inheritance also disposes toward syphilis. I believe, however, it would only be fair to extend the parity of reasoning thus far. A cancerous inheritance undoubtedly disposes toward tuberculosis, and a tuberculous inheritance disposes toward cancer. This all means that the physiologico-chemical resistance of the cells and tissues is so reduced by an inheritance of a diathesis that the individual is particularly susceptible to microbic inoculations. Incidentally this may be used as another argument for the microbic origin of cancer.

All surgeons know that individuals react very differently to sepsis. Some are overcome at once, while others bear an exceedingly virulent invasion with comparative safety, and others still occupy a middle ground with reference to vicious micro-organisms. Some individuals after operations recover from most exaggerated conditions of septic peritonitis brought on by fulminating and gangrenous appendicitis or salpingitis, while others, apparently equally strong in every way, succumb to a very mild form of sepsis, even after the most careful and painstaking operation and unremitting care and skilful after-treatment. It is true that all apparently mild conditions of sepsis from appendicitis are really far from being such, as they may possess the potential features of a most virulent and fatal inoculation. On account of a pylephlebitis of the distal branches of the portal vein, thrombosis of these branches may and frequently does exist in cases of abdominal sepsis, subsequent detachment of the emboli laden with streptococci and staphylococci and their lodgment in the liver or in some nearer small vein may serve to determine many of the so-called "inexplicable deaths" which follow "ideal appendectomy" (Dr. A. G. Gerster, in a paper read before the last meeting of the American Surgical Association, very forcibly demonstrated this fact), but why do some cases escape these several manifestations of advanced sepsis, while others with as nearly as human foresight and experience can procure the same careful technic and

*The Address in Surgery delivered before the Pennsylvania State Medical Society.

management, die on account of this blood poisoning? I think but one answer may be given to this. Namely, individuals inherit or acquire varying powers of resistance. Some persons undoubtedly have inherited comparative immunity on account of the superior qualities of the antitoxins and cytolysins of their blood and tissues. That environment and habits also have to do with this is no doubt true, and I will mention this point under another head presently. As Darwin has shown, however, it requires many generations to change materially the outer form and characteristics of an animal by environment. We may fairly conclude that the quality of the cells *does* improve with the general improvement of the physique of the individual, but there is abundant evidence to show that the apparently most robust individual is not always the most resistant to septic conditions. If there were time I might cite numerous instances of this fact, but I am sure, it is thoroughly familiar to you all.

To sum up this head in a postulate, I would say:

1. Dyscrasias may be transmitted by inheritance and weaken the resistance of animal cells to toxins; individuals who have such an inheritance are particularly liable to microbic inoculations, and do not develop antitoxins and cytolysins of sufficient potency to overcome infections. Such individuals are apt to die from very mild forms of sepsis after operations.

Another circumstance which materially affects the results of operation is the:

2. *Environment and Habits of the Patient.*—It is not necessary to argue this point from any profound scientific basis. It is now commonly conceded that human beings, in common with all animals, are markedly modified by their continued surroundings and their modes of living. In the ultimate scientific conclusions this belongs properly to heredity. I wish rather to call attention to some ordinary observations which bear on this matter.

It will be conceded at once that individuals who have habitually and for long periods been subject to very bad sanitary and unhygienic conditions do not bear operations well. My observations and experience have convinced me, however, that the bad conditions of this kind are not confined to city and town life. The advantage of free outdoor life with pure air during the daytime in rural life is, in many instances, more than overbalanced by the lack of ventilation and crowding in the sleeping apartments at night, and the very common habit of eating poor and improperly cooked food, which is prevalent among farmers. Farmers eat a great deal of pork, salt and dried meats, and canned vegetables. They have the advantage, it is true, of fresh fruits in their seasons, but they use these fruits without discretion, usually immoderately while they last, and they very rarely ever have their meals properly cooked. There is no class of people, in my experience, so given to indigestion and the varying concomitant intestinal disturbances as farmers are. The children are commonly poorly nourished and only in early adult life do they seem near the proper standard of development and nourishment. Farmers are so poorly nourished and their digestive organs are usually in such wretched condition that they are not good subjects for severe operations, and they are very liable to septic inoculation.

City people, besides being better fed as to quality of food, have their meals better prepared as a rule, except in the very poorest classes, and they have, on account of daily necessity, acquired a certain degree of immunity to sepsis. Their antitoxins and cytolysins are continually stimulated and are in constant use. They are, therefore, not so liable to septic developments as farmers. Except the very poorest people who live in the congested tenement districts, who are subjected to foul air and surroundings, and who live on scanty and poor food year in and year out, I think city and town-reared people stand operations better than the ordinary farmers.

Besides the environment, *the habits of the individual* have much to do in determining the result of an operation. The excessive indulgence of any appetite lowers the resistance of the whole system to traumas. I have found especially that the excessive indulgence in beer markedly increases the tendency to phlegmonous inflammations. Beer drinkers furnish most fertile soils for streptococcal development. They are also most unfavorable subjects for general anesthesia.

Whisky drinkers are not only difficult to anesthetize but they are very subject to postoperative nephritis, pneumonia and delirium tremens and on account of frequent atheroma they bleed more and they are more apt to die from so-called "exhaustion" after operation.

Vegetarians, or persons who live chiefly on vegetables, do not stand the loss of blood well, and they are peculiarly liable to die from acute anemias. They also react very poorly to saline infusions for the restoration or the substitution of the circulation of the blood in cases of exhaustion after severe hemorrhage. On the other hand meat eaters, the full-blooded and plethoric individuals, do not as a rule stand general anesthetics well. It requires much skill to bring them under the anesthetic and constant and very skilful care to prevent asphyxiation when fully under, especially when ether is used. If the heart be absolutely sound chloroform should be the anesthetic of election in these cases.

3. *Disposition of the Patient.*—Unquestionably, I think, a bright, cheery, sanguine and courageous disposition tends markedly to favorably influence the result of any major operation. I always feel handicapped in operating on a despondent and excessively anxious subject. Nervous energy counts tremendously in the reaction, resistance and tenacity of an individual after an operation. This has more to do with the outcome of a severe operation than mere physical fitness. I hesitate long and undertake with many misgiv-

ings a serious operation on a person who "knows he will die from the operation." Such individuals do recover many times undoubtedly, but if aught goes seriously wrong their mental laxity and lack of nervous tone almost surely bring them to the grave.

4. *Age.*—The extremes of age increase markedly the bad prognosis of an operation. Very young children and very old people do not bear anesthetics well, nor can they stand the loss of blood. Such individuals are apt to die after long operations, and operations done for very vascular tumors, or in regions where complete hemostasis is impracticable. Of 85 deaths after operations which have occurred in St. Luke's Hospital the last ten years, 7 were under five years of age; 10 were five to twenty years; 23 were twenty to forty years; 30 were forty to sixty years, and 15 were over sixty years of age. These I presume are average statistics, and while the number is too small to make any valuable generalization, they indicate that, barring the extremes, the exact period of life itself when an operation is endured does not make any material difference in the result.

5. *Sex.*—This seems to have no marked influence in the result of an operation, provided the physical condition is good.* I think my experience has shown, however, that women bear operations for septic conditions of the peritoneal cavity better than men do. Probably the superior vascularity of the pelvic region in women, which is most frequently the seat of septic inflammations and accumulations, will account for this. Another fact may also influence this result, namely, that men use the diaphragm much more than women do in breathing. The action of the diaphragm tends to draw, by intermittent pressure, and relaxation, the lymph current upward. In men, therefore, septic products are much more apt to ascend to the subphrenic and supraphrenic lymph nodes, a lodgment which is well known to be especially apt to cause fatal results.

6. *Nationality of the Patient.*—This in my experience makes little difference in the result of operations. I have observed, however, that the lower classes of Slavs and Italians, such as are met with in this part of the country, are apt to be very emotional, and are very intolerant of pain, and are very difficult to restrain after serious operations. Crying and extreme restlessness must of course make great difference after some operations, and on this account these two classes of patients are not desirable subjects for major operations.

7. *Physical Condition of the Patient.*—The most important point for the surgeon to find out, and accurately to gauge, *is the physical condition of the patient at the time of the operation.* So-called "laboratory methods" have greatly broadened the scope of the former routine of physical examinations. The accuracy of the determinations of the character of excretions, of the blood and of most of the secretions, nowadays in the laboratories give us certain data which are of immense value. I believe, however, surgeons are inclined to depend too much upon laboratory investigations and neglect the old methods of bedside examinations, or at least they relegate them to secondary importance. I believe that in no other field of medicine do the methods of Zadic so constantly apply, and are of such constant value as in surgery. In some instances the findings of a personal physical examination should supersede or qualify the determination of a laboratory conclusion. For instance, laboratory investigations tell us that an operation performed on a patient whose hemoglobin is below 40 per cent. is usually fatal. Yet I am sure we have all had uninterrupted recoveries and no serious result after many operations done on patients whose hemoglobin was below 40 per cent. It is true most individuals who have a cachexia and, on account of this, slow poisoning and undermining of their health and gradual deterioration of their blood and have less than 50 per cent. hemoglobin, are not safe subjects for operations. It is a different matter, however, if this lowering of the hemoglobin comes from a hemorrhage or from a series of hemorrhages.

Again, it is conceded that albumin and granular casts in the urine indicate that the patient who excretes such urine is a very unsafe subject for anesthesia, especially ether anesthesia, and markedly increases the danger of any operative procedure. Large ovarian and uterine tumors are apt to produce, on account of pressure and mechanical interference with the blood supply and circulation in the pancreas, liver and kidney (chiefly the portal system) just such indications in the urine; the affected organs are relieved and the vitiated renal excretion is entirely remedied by the removal of the tumor, and the operation does not prove extrahazardous in these cases. I might multiply instances of this kind.

I wish to urge the great importance of a careful and thorough physical examination of every patient by the surgeon himself, or by some one qualified to make careful physical examinations. This should be done before even minor operations of expediency. Subjective symptoms may sometimes clearly indicate the seat of a lesion requiring surgical interference, in other cases it requires a careful systematic physical examination to find the disease. For instance, rectal carcinoma is frequently attended by very decided gastric symptoms. I have observed this in a number of cases, notably in one case the gastric symptoms were so pronounced that for months the patient was treated by some of the best internists for gastric disease. After the carcinoma was found and removed the stomach symptoms disappeared entirely.

It is a matter of serious importance that scarcely one medical school in the United States teaches its students to use their *eyes* in examining a patient. Students are laboriously indoctrinated

* My statistics show: Taking out 15 deaths after operations done for bad crushes, which were practically all men, 37 males and 33 females died out of 85 fatal cases.

into the importance of carefully cultivating their senses of touch and hearing, and are taught thus how to discriminate between normal and abnormal protuberances and sounds of the body, but we scarcely can find a student who thinks of first carefully *inspecting* the surface of his patient's body or his extremities in order to see and thus note any abnormalities, and to know how to discriminate between the normal and abnormal contour and color, or tension of the body. Many instances have come under my observation where this lack of training has led to serious errors in diagnosis. Unquestionably, I think both personal, clinical and laboratory examinations and investigations should be made, whenever it is possible to have them done before all serious operations.

Organic diseases of any of the viscera greatly modify the prognosis of operations. Dr. J. R. Bradford* calls attention to certain so-called "latent diseases," that is to say, these diseases are of such a kind that they might exist in a given case without any special evidence of their presence, and unless one makes a careful painstaking examination they might not be recognized. Operations done for some other cause might be particularly hazardous on account of these latent diseases. The diseases mentioned by Dr. Bradford are: (1) Nephritis, (2) diabetes mellitus, (3) typhoid fever, (4) rheumatism, (5) latent cerebral abscess from middle-ear disease, (6) pleural effusions, (7) gastric ulcer, (8) malignant disease of the stomach, (9) gallstones, (10) the rare condition of a high degree of atrophic cirrhosis of the liver in children. This condition may produce symptoms of acute peritonitis. All these diseases may be excited to active conditions from the latent state by any operative procedure and may prove disastrous to the patient.

General arterial atheroma or endarteritis deformans also contributes markedly to the danger of an operation. When this condition is accompanied by an intermittent heart action, no matter how well the patient may otherwise seem to be, the prognosis after any serious operation is very grave; the coronary arteries are involved and the heart is fatty.

As was suggested before, patients who are already in serious septic states, especially those who have septic peritonitis, are very bad subjects for operations. The reason is, in these septic conditions it is frequently impossible to get rid of all the septic matter. There is frequently pylephlebitis of the branches of the portal vein, or infection of the posterior lymph nodes of the peritoneum. The most thorough washing out and drainage will not relieve the patient in these cases. However the all important point *is thorough drainage*, after thorough removal of the septic products and thorough cleansing. The posterior route should be used for men, the vaginal for women. Fowler's position is good for women, for men lumbar drainage is better. Of the 85 deaths after operations which I have had in the last ten years, 40 of the patients were already septic.

Patients who are seriously affected by malaria are also bad subjects for operation, so are also leucocythemic patients.

It is the duty of the surgeon to find out the existence of any organic disease, and reasoning from what he knows of its nature and tendency he should apply this in estimating the effect in his proposed operation.

8. *Extent and Locale of the Operation.*—Aseptic surgery and the technic of thorough hemostasis have robbed extensive operations of much of their danger. There are no "noli me tangere" regions in the human body now. Still there are two regions which seem to be especially unfavorable for extensive operations. I refer to (1) the base of the brain and (2) the thoracic cavity. With great care even these two regions may be invaded without serious results. For instance, I have recently had two very extensive crushes of the cranium which involved the base on both sides as well as the vault, and which required exploration of the base of the brain on both sides, make rapid recoveries even though there were great hemorrhage and injury to the cerebrum. I have also removed a large segment of the thickness of the thoracic cavity in an operation for a secondary scirrhus and sewed the lung to the opening in the walls of the thorax, and finally by using the external surface of the lung to block up this opening have succeeded not only in saving the life of a cachectic woman but also secured an excellent functional result for both lung and thorax. Notwithstanding these and many other good results, notably the closing of many wounds of the heart, which other surgeons have had in these regions, the fact remains that these two are perhaps the least favorable of all the regions of the body to invade. One must always bear this fact in mind in estimating the chances of any case which requires operation in these regions. The scope of this paper will not permit me to go into the reasons for the bad prognosis of operations on the base of the brain and in the thoracic cavity. I must refer my hearers to modern textbooks for further discussion of this subject.

Thus I have tried to show that inheritance, environment and habits, disposition of the patient, age, sex, nativity, physical condition of the patient at the time of operation, the extent and locale of the operation—all have something to do in determining the personal equation of the patient about to be operated on. I reiterate that it is the surgeon's duty conscientiously to endeavor to find all the data which will enable him to determine the importance of all these points with reference to any individual upon whom he intends to operate. This means he must take a careful history of the patient including his family history as far as it may be definitely obtained. Also he must make a careful and thorough physical examination, and call to his aid laboratory investigations. With an experienced and careful sur-

* Lancet, April 4, 1903.

geon I am disposed to lay the greater importance on the personal physical examination, and should rather trust to this than to laboratory findings to determine the possible danger of any proposed operation, taking for granted, however, that an examination of the urine shall be one of the examinations included in my term personal physical examination.

Reflection on this subject and these facts which so critically influence our operations suggests that more difficult than determining when to operate is to know *when not to operate,* and this last is, to the patient, in many instances far more important. Our age is inoculated and thoroughly intoxicated with the furor for operations. I think it is time for thoughtful educated surgeons to study more the prevention of operations than new operative procedures.

Preventive surgery is just as possible and important as preventive medicine. Let us continue to try to learn the cause of the various surgical conditions, and also try to remove these causes and so prevent the disease. As Sir W. H. Bennett has properly said, the majority of surgical operations come from the three most prevalent diseases—(1) cancer, (2) tuberculosis, (3) syphilis. If surgeons would try faithfully to prevent these, fewer operations would be necessary.

We do not yet know the actual agent which causes cancer. We do know, however, that constant irritation of a part, especially where mucous and cutaneous surfaces are in juxtaposition, will produce epithelial cancers. Forbidding the use of a short stem pipe, or *any* smoking, or the filing of the sharp edge of a tooth may prevent epithelioma of the mouth and lips. Attention to little ulcers of the anus, the early amputation of a degenerated uterine cervix, which has previously been neglected after it has been lacerated, may prevent cancers of the rectum and uterus.

Further, it is generally conceded by pathologists as well as surgeons that even after a lesion has started there is a period which may be called the precancerous period, during which a tumor which may subsequently be most malignant has the qualities of a benign tumor, and may be removed with assurance that it will not recur. It is of the greatest importance that every tumor shall be removed as soon as it develops. People generally are not thoroughly impressed with the tremendous importance of this fact. Surgeons should endeavor to educate the people to thorough appreciation of this. By educating the people tuberculosis is finally regarded as a disease which may be prevented, and people have been taught and are being taught what measures to take to prevent this dread disease. Its half brother, the far more dreadful cancer, may also be prevented, at least in some instances. Surgeons first should teach family physicians, and they in turn their families, how to prevent and to stop the progress of cancer.

Temporizing in surgery will not do. People should be taught that when they have any tumor or lesion of any kind which requires removal or operative interference, it is of vital importance to have it done at once. Physicians frequently do not believe this themselves, else surgeons would have far less trouble with cases which have "gone too far."

In conclusion, I beg to appropriate the words of Sir W. H. Bennett:* "In the meantime taking things as they are, it is well that we should beware lest a single predominant factor should be allowed to lead to our regarding, through a small tube only, a subject the horizon of which is absolutely unlimited. It has been said that the basis of surgery is handicraft, and this, in a sense, is true; but surely it is truth only half told, for apart from the issues to which I have referred there is lying behind a far greater thing, the knowledge of when to apply that craftmanship of which every one who now aspires to the practice of surgery should make himself a master. Nothing that has happened in the improvements connected with the practice of our art justifies, so far as I know, the modification by one iota of the edict of the great surgeon, who before advancing science had robbed operations of most of their horror said, 'The all important thing is not the skill with which you use the knife, but the judgment with which you discern whether its employment is necessary or not.'"

VALVULAR DISEASE OF THE HEART AND ITS TREATMENT. CASE OF MITRAL OBSTRUCTION AND INSUFFICIENCY WITH TRICUSPID REGURGITATION AND PULSATING LIVER.†

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To properly care for a patient with valvular disease of the heart one must be aware of the difference between established and ruptured compensation, and also capable of making the clinical distinction. The ability to decide whether hypertrophy or dilatation prevails in a given case presupposes a practical knowledge of physical exploration. Without doubt many persons in whom valvular defects of the heart have been revealed are injured by indiscriminate treatment.

For example, I was called in consultation to see a young girl who had mitral regurgitation. There was no evidence that the consequent dilatation of the heart was not well balanced by the hypertrophy. However, she was nauseated and almost pulseless at the wrists, and the heart was beating and throbbing tumultuously. It appeared that she had been getting large doses of digitalis every four hours for several days for no other reason than that a bruit had been discovered. Here the remedy lay in the stopping of the medicine. Cardiac valves once injured by disease must of

* Lancet, May 23, 1903.

† Read before the Section on Medicine, at the New York Academy of Medicine, Jan. 19, 1904.

necessity remain more or less defective, but within certain limits nature repairs the damage by increasing the muscular power of the heart. Resulting dilatation of the cavities is balanced by hypertrophy of their walls, and it is not until this hypertrophy is overcome by secondary dilatation that treatment is indicated.

The outlook for a patient whose valves are affected depends upon the location as well as the character of the affection. If it be a stationary lesion, that is to say, merely the scar of an old inflammation, other things being propitious, the prospects are favorable. But if there is a progressing sclerosis, the duration of the compensatory adjustment is uncertain and likewise the prediction. In aortic patency without stenosis, though sudden death is always a possibility, the patient may continue to live indefinitely. An associated contraction of this orifice is a saving factor in the prognosis. Obstruction alone is very much less serious than regurgitation. Mitral stenosis and mitral insufficiency are about equal in their eventualities. Neither commonly results in sudden death yet the end begins, however gradual and deferred it may be, with the rupture of compensation. We can say what may happen in a particular instance of valvular disease, but to say what will happen is a different undertaking. A man in whom a mitral insufficiency was noted by me during a routine examination more than twelve years since is still in excellent condition. Sixteen years ago a young man consulted me about an aortic insufficiency, not that he was inconvenienced thereby but because my advice was recommended. Thus far there has been no serious break in compensation. One patient with a mitral insufficiency that was due to a lesion which was stationary and in compensation has been under my observation for twenty-two years, and another likewise conditioned, for twenty-three, and neither in the meantime has suffered therefrom anything more than occasional breathlessness. There was a dentist who came to consult me, in his sixty-third year, on the first appearance of a broken compensation for a double aortic lesion and a mitral insufficiency. Forty years previously, he had been examined by three physicians, at different times, who each made the diagnosis of a valvular disease, and informed him that he could not live more than two or three years at the utmost. With ill-concealed gusto, commenting upon their powers of prognosis, he told me that he had outlived them all many years. Recently there was a young woman, just up from childbirth, in my service at the Hospital suffering from pleurisy and pneumonia, who also had a mitral stenosis of old standing, generally a serious complication, yet, owing to her youth, good constitution and an unbroken compensation, she recovered. Valvular disease that has lasted for long in persons advanced beyond early middle life is apt to be associated with degenerative changes that make an attack of pneumonia or the taking of an anesthetic extremely hazardous. On the other hand, a valvular disease previous to this period, in good compensation, is not necessarily fatal in pneumonia or dangerous in anesthesia. Lastly, there is an instance known to me of a man who lived with a valvular disease of some nature from the time he was eight years old until he was ninety-four, and from the results of which disease, after this remarkable record, he succumbed.

It is my desire when feasible, which is by no means always, in advising a patient with valvular disease frankly to explain the condition of affairs, without provoking undue apprehension, and thereby to forestall a fortuitous rupture of compensation. This would seem to be our duty if we expect to shield him from what is certainly at all times impending. He then can act intelligently, and if he fails to observe our instructions, he alone will be answerable. Excesses of various kinds are prone to lead either to sudden death or to a break that is equally fatal eventually. For instance, a young man with mitral stenosis, but otherwise in excellent condition, who had reason to look forward to many years of comparative activity, through excessive exertion as an athlete brought about a disturbed compensation. After restoring things to their proper relations, by suitable treatment, my earnest advice was that he should forego all violent exercise in future, nevertheless he persisted, despite my warnings, in the practice of wrestling, and in less than two years broke down and died. There is no reason why a vocation or an avocation should be abandoned unless inordinate physical or mental strain is involved, by a person who happens to have a valvular defect for which there is adequate compensation.

Early hours for retiring at night, and sleeping in well-ventilated apartments are advisable. The life of a ready normal sleeper and a believer in fresh air is generally prolonged. Nourishing food in small quantities, eliminating whatever tends to produce flatulence, should be taken with regularity. Habitual light eating rather than any special form of diet best insures against the ills which we acquire but flatter ourselves are inherited. Mild wines may be drunk at meals if custom and taste so demand, but strong alcohol as a beverage at all times should be eschewed. The use of tobacco, except in great moderation, is harmful in cardiac disease. Daily bathing, preferably in warm water, is necessary to keep the skin active, particularly for those whose lives are sedentary. Whether the shock of the cold bath is injurious or not, like many other things, after all resolves itself into the personal equation. Some close observers are aware of a secondary reaction an hour or two after a matutinal cold plunge, even when a warm glow follows the immediate emersion, that amounts to a depressing chilliness. Very hot baths, including the Russian and the Turkish variety, are exceedingly dangerous. Surf bathing and swimming, unless carefully indulged in, are liable to overtax the heart and cause prostration. In regard to the clothing, it should be suitably warm but not cumbersome, and suffi-

ciently porous in texture to insure ventilation. Linen mesh underwear and enough woolen in the shape of other garments for warmth or comfort are in my opinion the ideal combination. Still, woolen drawers may have to be worn by sensitive persons in cold weather owing to the fewer outer coverings of the lower extremities. There should be a frequent change of underclothing, particularly of the stockings. To condemn a patient to inactivity simply because there is a valvular obstruction or leakage though well compensated is the height of mismanagement. Regular moderate outdoor exercise is essential to his bodily welfare. It facilitates the removal of the products of disintegration, and supplies new life to the cells and tissues, including those of the organ whose integrity we are especially desirous of maintaining. Let it be understood, however, that there shall be no violent muscular exertion. No boat racing, football, baseball, wrestling, running, jumping, or any severe athletic contests or heavy gymnastics. Walking, golf, riding, rowing, fishing, hunting, and many games and outdoor occupations that are not too strenuous can be safely permitted. Systematic walking in the open air, preferably upon a level, while practising deep breathing, though possibly not interesting, is the safest of exercises and one of the most beneficial. High altitudes are not well endured and may be dangerous. Worry and excitement are to be avoided as much as possible. Indeed, moderation in everything that pertains to daily life is the keynote of the entire situation. These precautions may be neglected by the subject of a valvular disease with impunity for a certain period, but such negligence is sure to result, sooner or later, in sudden death, or a more gradual rupture of compensation, which last is the beginning of the end, however delayed by judicious treatment.

Although undue shortness of breath is one of the early symptoms of a failing compensation, nearly every patient with a defect of the mitral valve suffers on extra exertion a certain amount of breathlessness. This is without serious significance. It is simply a passing disturbance of the balance in the circulation which is slightly in excess of what occurs under the same circumstances to the average healthy individual. When the compensation is really ruptured, provided death does not follow immediately, there will be evidences of dilatation of the heart, shortness of breath, dyspnea, possibly cyanosis, and cardiac palpitation. The action of the heart becomes irregular, there is usually dropsy that first appears about the ankles, and which eventually becomes general. Passive effusions are prone to collect in the pleuræ and the pericardium. In regard to an irregular pulse in mitral lesions, in which every few beats are full and strong, despite the weakness of those intervening, there need be no particular alarm. Here the few recurring strong beats are an evidence that the heart is really not weak, whatever the cause of the irregularity. Irregularity of the pulse in aortic disease is commonly a serious manifestation. Bronchial and intestinal catarrh are among the very early symptoms of a loss of balance between the arterial and venous circulation. When the ordinary remedies fail in these troubles a little digitalis added to the prescription will sometimes result most favorably. Likewise in regard to periodical uterine hemorrhage. There was a patient of mine with mitral stenosis who was greatly exhausted each month by menorrhagia. This was materially controlled, after the difficulty had been analyzed, by full doses of the infusion of digitalis just prior to and during menstruation.

Whatever doubt there may be about the advisability of letting the patient know that he has a valvular defect, during its period of relative latency, even when all fears are carefully explained away by showing its comparative harmlessness, there seems to be but one course to pursue where hypertrophy of the heart has been overcome by dilatation. To be forewarned is to be forearmed in medical matters, as well as elsewhere, against an end that is threatening. In mitral disease the slight beefy redness of the lips that can be seen if the patient is closely observed after even moderate exercise, and the trifling shortness of breath which occurs, safely can be disregarded if on resting they quickly disappear.

When a ruptured compensation becomes pronounced, and in fact through all grades of disturbed equilibrium, rest is of paramount importance. It is not infrequently all that is required for rehabilitation. To me there is little reason in the attempt to restore a cardiac muscle that has lost its elasticity by subjecting it to further stretching by the strain of such performances for example as mountain climbing. Massage in properly selected cases is often serviceable. And also as a sequence to the all-important period of rest some of the so-called resistance-movements. In passive exercise there are, when the time is wisely chosen, many features that are desirable as well as in active exercise. On the whole, in my opinion, the various baths that are advised, such as those of Nauheim are more suitable for functional than for valvular diseases. Indeed, they are of no use in stationary lesions, and are hazardous in the extreme where there is extensive dilatation. When venous engorgement is excessive, and there is manifest distress therefrom, much relief can be obtained through venesection. A concentrated solution of magnesium sulphate taken about an hour before breakfast is a valuable means of depletion through the bowels especially when there is much anasarca. Some of the disturbing symptoms of valvular disease are frequently best alleviated by small repeated doses of calomel and soda bicarbonate. After more than twenty-five years experience in the employment of digitalis in heart affections, my conviction is that properly used and in its purity it is one of the few drugs that are indispensable. It matters not what valve is affected, some preparation of digitalis, preferably the tincture or the infusion, is the remedy for ruptured compensation. Contrariwise, it can

only work mischief where there is a perfect adjustment between the means and the avenues of circulation.

In consultation with a practitioner, who was strongly prejudiced by his previous training against the use of digitalis in aortic lesions, he could not be persuaded to give it in a case of aortic and mitral insufficiency that was in the extremes of a destroyed compensation. The drug was prescribed, however, and in large doses with results that were efficacious. Digitalis, slows the heart and strengthens its contractions, and that meantime it allows somewhat fuller regurgitation, and also increases tension in the peripheral arteries, is no argument against its supreme usefulness. The proof of the value of the remedy rests upon the good results that have followed its employment, and not upon theorizing in regard to the imaginary consequences of prolonged diastole or of increase in arterial pressure. Manifestly there are conditions of the heart that are beyond the help even of digitalis. Sometimes, however, it fails to act, owing to a lack of purity, or to inadequate dosage, or to physical impediments. For instance, there was a young woman under my care with valvular disease that was so affected by the mechanical pressure of a consequent dropsy that medicine would not act upon the heart, kidneys, or even the bowels until her legs had been punctured and the general tension removed. A man came to me some years ago who was so dropsical that he was literally water-logged. He had been taking eight minims of the tincture of digitalis, four times a day, without the desired results. An increase of the dose to twenty minims was all that was needed to entirely remove the anasarca. Formerly a woman was put under my care in a similar condition, and she had to have the legs punctured, the chest aspirated, and repeated doses of a concentrated solution of magnesia sulphate, before she began to react to the digitalis. Now and then it is necessary, on account of a fault in the selection or the preparation of the crude drug, to seek a new source of supply if the digitalis is not working with satisfaction. The dose of the tincture of this drug varies from ten to twenty minims, and of the infusion from one to four drams, according to the urgency of the case, and to individual idiosyncrasies. It should not be repeated, for any length of time, more often than once in three or four hours, and when large doses are being taken the patient should maintain a recumbent position. The poisonous effects of digitalis are nausea and vomiting, decrease in the quantity of urine, fulness and slowness of the pulse followed by smallness and irregularity, with violent cardiac palpitation; its beneficial results are shown by relief of dyspnea, disappearance of dropsy, and cyanosis, and by increased strength, fulness, and steadiness of the pulse, together with an abundant renal secretion. As medical examiner for many years of a number of young physicians, quite above the average in attainments, competing for positions upon the house-staff of one of our large hospitals, my opinion is, if I may be pardoned for the digression, that, while remarkably well informed in most respects, a certain portion of them are lamentably deficient in a knowledge of the untoward and the toxic effects of the potent drugs they are expected to prescribe. It would seem wiser to burden their minds, in the teaching, with a smaller number of remedies, and to charge them with the vital importance of knowing all about the few that are essential, so that they may be able to readily distinguish between what is due to disease and what is sometimes the outcome of medication. The correct use of so powerful a remedy as digitalis predicates always the utmost watchfulness. Drugs at best are double-edged tools and require careful handling. Of all the substitutes for digitalis, the most valuable is strophanthus. It should be given in about five-minim doses once in four hours.

Strychnine is an excellent heart tonic but its use in large doses should not be continuously prolonged as it is liable to result in exhaustion. Nitroglycerin is available to relieve undue tension of the arteries, and it and digitalis are sometimes given with benefit in conjunction. Acetate of potash in sufficiently large amounts acts well when a diuretic is required. A free movement of the bowels with magnesia sulphate often will promote a desired action of the kidneys. In palpitation where there is excessive hypertrophy, the tincture of aconite in three minim doses every four hours is beneficial. Whenever valvular disease is complicated by anemia and malnutrition, which is not seldom, Fowler's solution of arsenic and the tincture of the chloride of iron are indicated in connection with nutritious food. Morphine and atropine combined, when simpler remedies fail, are helpful in palpitation, restlessness and sleeplessness. Small doses of these two drugs are often efficient in relieving cardiac pain and dyspnea. In full doses morphine is dangerous in pulmonary edema. The shortness of breath and distress caused by this condition must be treated by digitalis, by dry cupping, and by catharsis, and, when associated with cyanosis, venesection. Since this transudation of serum into the air cells is probably due in many instances, according to Welch, to an especial weakness of the left ventricle, digitalis is the chief reliance, but, when the entire lung has become edematous, the outlook despite every expedient is commonly hopeless. During my service last winter there was a patient, who, with a valvular disease, was suffering from a hitherto unaccountable orthopnea. It proved to be due to a large effusion in the right pleural cavity, and immediate relief was brought about by aspiration. Hydrothorax either bilateral or unilateral is a cause of difficult breathing that is now and then overlooked. Granting this to be the case, a withdrawal of the fluid is indicated, and should there be also a passive effusion in the pericardium the operation will facilitate its reabsorption. Puncturing the legs of a patient with extensive edema, under aseptic precautions, is a safe and most useful procedure.

When compensation has been reestablished, it

is well to begin with gentle massage, followed by resistance movements, and finally, where practicable, to enjoin pedestrianism. A daily walk in the fresh air out of doors, short in the beginning and cautiously increasing the distance, is nearly always salutary. Those who neglect this systematic exercise are apt to suffer in consequence. The pains and aches that often deter a person from making any exertion, and even the palpitation, frequently are overcome by persisting in that which originally caused the discomfort. With the circulation again in equilibrium digitalis may be entirely given up for the time being, or continued in small doses if it seems preferable indefinitely. Just how long a given case will survive the first serious break in the compensation under even the most intelligent direction is a difficult question to answer.

A great deal depends upon what is more or less beyond clinical observation. For example, the extent of histopathological disintegration in the heart itself. When the lesion is the result of an extinct endocarditis, instead of an ever advancing sclerosis, the integrity of the cardiac muscle is more apt to be preserved, and the outlook correspondingly encouraging. A patient suffering from a valvular disease was brought into my ward upon a stretcher, in an absolutely helpless condition, with general edema including hydrothorax and hydropericardium. In a few weeks compensation was restored by appropriate treatment, and she walked out of the hospital and disappeared. About a year afterward, having in the meantime been entirely without medical care, she came to light in the same distressing predicament, with extensive edema of the lungs in addition, to which, in spite of renewed efforts in her behalf, she finally succumbed. There was a man in attendance at my clinic for eight years with a mitral stenosis, who had marked edema of the legs and thighs, and cyanosis of the lips and extremities when he first appeared. During this period, after the break in the compensation was repaired, he was able to do light work much of the time, though he was kept under regular medical inspection. A patient, aged fifty-six years, suffering from an excess of dilatation of the heart over hypertrophy entered my dispensary in March, 1900, with a large sacculated aneurism of the ascending aorta, and with aortic insufficiency and obstruction, and mitral regurgitation. His heart gave dulness on percussion for two and a half inches, on a level with the sternal insertion of the fourth rib, to the right of the median line, and six inches to the left, and from that same level down the sternum to one and a half inches below the ensiform cartilage. The balance was renewed between hypertrophy and dilatation and he has continued in a fairly good condition for three years, despite this enormous cardiac enlargement; an increase in the size of the heart that must exceed even the wide limits of the superficial area marked out by percussion, and yet the man goes about with relatively little discomfort. There was a lawyer who toward the close of a very active career consulted me in his eightieth year for a first rupture in the compensation of an evidently long-standing double aortic lesion with mitral regurgitation. He recovered and lived, despite numerous temporary relapses, for seven years thereafter, but, he was constantly under treatment and general supervision. My experience leads me to the conviction that it would be a wise precaution for every patient with heart disease who has once begun the downward journey of a failing compensation, if not previously, to place himself under the direction of his physician even during the intervals of illness when there is seemingly no such necessity. An approaching disturbance can then be detected early enough to ensure, what otherwise is without certainty, the prospects of restoration.

In connection with the subject of this monograph, the following history is offered in exemplification:

Mitral obstruction and insufficiency, with consequent tricuspid regurgitation; pulsating liver with probably hypertrophic cirrhosis.—Case.—P. A., aged thirty-four years; occupation, masseur; born in Germany; married; nineteen years a resident of this country; was admitted to my department of the New York Post-Graduate Dispensary in 1899, and brought to my clinic for examination. Family history unimportant; personal history: Never had the diseases of childhood; was always healthy up to his twenty-second year, when he had gonorrhea. He has been an intemperate drinker of beer for at least twelve years. Admits having sometimes drunk as much as a hundred glasses in twenty-four hours. His sexual proclivities have been unrestrained. Shortness of breath while walking first appeared about five years before coming to the dispensary. Two and a half years ago his abdomen became swollen, and it was tapped and a small amount of fluid withdrawn. Present complaint: Exceeding shortness of breath, and pain in the left side, on exertion; swelling of the legs; enlarged abdomen; prostration. Physical examination: Edema of the lower extremities; cyanosis of the lips and tips of the fingers; marked pulsation of the deep and superficial veins of the neck, especially of the right side, with venous regurgitation; ascites; veins on the surface of the abdomen prominent; dilated hypertrophy of both sides of the heart with an excess of dilatation; weak mitral systolic, presystolic and tricuspid cystolic murmurs; pulmonary and aortic second sounds not accentuated; liver enlarged; extends from the fourth rib in the right nipple line down below the free border of the ribs to the level of the umbilicus; a heaving expansile pulsation of the liver not communicated directly from the heart or the aorta, but from a regurgitation of the blood down the inferior vena cava into the hepatic veins themselves. Lungs slightly edematous. Treatment: Paracentesis abdominis; concentrated solution of magnesia sulphate one hour before breakfast; tincture of digitalis minims 15 every four hours; strychnine sulphate gr.

1/60 three times a day; dry diet and rest in bed as far as practicable.

In the course of a few weeks, there was no more dropsy of the peritoneum; heart sounds and murmurs became more distinct; edema disappeared, and, practically, the cyanosis; pulsation of the veins of the neck and of the liver gradually diminished; finally the tricuspid bruit was no longer distinguishable. The mitral systolic and presystolic murmurs remained, but the latter became inconstant. The compensation was restored, the tricuspid murmur cured, and the patient thus far maintains the established equilibrium.

Recapitulation.—Judicious treatment of a patient with valvular disease of the heart presupposes a knowledge of the distinction, and an ability to discriminate clinically, between adequate and inadequate compensation; possibility is one thing, probability is another, and finality quite another in the prognosis of these affections; although not always feasible, it is nevertheless desirable frankly to explain the situation, where dilatation from valvular defects is balanced by hypertrophy, in order to forestall a fortuitous disturbance of equilibrium; ordinary occupations and recreations not too strenuous need not necessarily be abandoned; systematic outdoor exercise, preferably walking, is not only permissible, but, to maintain the integrity of the heart muscles, actually indispensable; violent exertion, exciting emotions, and excessive eating and drinking are positively injurious; temperateness in all things pertaining to daily existence should be the watchword; with failing compensation absolute rest is of paramount importance, and, not infrequently, all that is necessary for rehabilitation; digitalis in this condition irrespective of the valve affected when drugs are required is the sole remedy that cannot be dispensed with; large doses may be given for a short time and small doses for a long time or indefinitely; strophanthus is one of the most reliable substitutes for digitalis; nitroglycerin, calomel, aconite, iron, arsenic, magnesium sulphate, and strychnine are valuable adjuvants; maximum doses of strychnine should not be continued for extended periods without intermission; finally, ruptured compensation is the beginning of the end, however long deferred by intelligent management.

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Post-mortem Irritability in Nerves.—In comparing the differences in irritability between the nerves of animals which have been anesthetized for some hours before death, and those of animals which have not been so treated, W. D. Cutter and P. K. Gilman (Proc. Am. Physiol. Soc., Am. Jour. Physiol., Feb. 1, 1904) found that the nerve removed from the anesthetized and cooled animal survives for a longer time than that taken from the animal at the beginning of the period of anesthesia, the difference in time of survival being as much as four or five hours. A more marked difference, however, is that the anesthetized nerve exhibits throughout a much greater irritability.

THE CLINICAL SIGNIFICANCE OF PAIN IN THE EPIGASTRIUM.*

BY FRANK H. MURDOCH, M.D.,
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Pain in the epigastrium may be due to hyperacidity, hypersecretion, hyperesthesia of the stomach, nervous gastralgia, biliary colic, certain affections of the spinal cord, cancer, gastric ulcer, pancreatitis, some forms of appendicitis, and Addison's disease.

The pain of hyperacidity comes on one or two hours after meals, and ceases at the end of the digestive period. It may be temporarily relieved by the ingestion of food or alkalies. There is sometimes general tenderness over the whole epigastric region; but pressure never causes actual pain.

The pain of periodic hypersecretion comes on suddenly in the midst of perfect health. Besides pain there is extreme thirst and vomiting of large quantities of hot sour fluid, which upon examination proves to be gastric juice. Even if no food or drink is taken, the stomach in a few hours fills up again, to be again emptied by vomiting. The patient becomes greatly exhausted, his pulse grows feeble and his extremities cold. These symptoms may continue for two or three days, then suddenly disappear; and the patient in an astonishingly short space of time be restored to health. The following is a typical case of periodic hypersecretion so far as symptomatology is concerned; but instead of the hypersecretion being due to a neurosis, it was the result of gastric ulcer:

Case I.—On October 21, 1899, J. R., hotelkeeper, thirty-three years of age, consulted me in regard to his stomach and gave the following history. During the latter part of 1897 he began to be troubled with distress after meals, and much bloating and belching. On Thanksgiving Day, 1898, he became suddenly ill, and was at once obliged to assume the recumbent position. During the first three days and nights of his illness he experienced, every two or three hours, severe pain in the gastric region, which was temporarily relieved by vomiting a large qauntity of hot sour fluid. He also suffered greatly from intense thirst, and became so exhausted that he was scarcely able to turn himself in bed. At the end of three days the pain and vomiting ceased, so that he was able to retain liquid food; after which time he began to improve rapidly. He was in bed altogether two weeks, and during that period lost fifty pounds in weight; but from the time he was able to leave his room, his recovery was as rapid as the onset of his illness had been sudden; for in a month his health was completely restored and he had fully regained the weight he had lost. He had a second attack in February, 1899, a third in September, 1899, a fourth in April, 1900, and a fifth in June, 1900. A specimen of the vomit sent to me during one of these attacks proved upon examination to be gastric juice, mixed with

* Read at a meeting of the Pittsburg Academy of Medicine.

food particles, Töpfer's test showing that free hydrochloric acid was present in more than normal amount. He had during the period before mentioned two hemorrhages from the stomach, one following and the other preceding an attack of hypersecretion.

The chronic form of hypersecretion, commonly called Reichmann's disease, is usually associated with hyperacidity. There are pains in the epigastrium which come on two or three hours after meals. Very soon vomiting appears as a new symptom. At first it occurs only occasionally but later on two or three times a day, sometimes it also occurs in the early morning (about two or three o'clock) and is then preceded by a long and severe attack of pain (Einhorn).

In patients suffering from chronic hypersecretion, the stomach always contains gastric juice in the fasting condition; and this is the most important point characteristic of the disease.

Case II.—On January 23, 1900, T. W., aged fifty-six years consulted me in regard to his stomach and gave the following history: Twenty years ago he had a hemorrhage from the stomach which greatly weakened him. After the hemorrhage he was in bed for a month, and lived during that time on liquid food. Ever since he has been troubled with constipation, and has had attacks of vomiting once or twice a year. In April, 1899, he had such an attack, and for a week blood appeared in his stools and also in the vomit. In the autumn of 1899 he spent a month in England, returning October 28. During this trip he felt perfectly well, his bowels moved naturally, and he did not vomit. Soon after reaching home, however, his bowels became constipated, and vomiting returned. Since November 28, 1899, till the present time, that is about two months, his bowels have never moved without an enema; and he has had attacks of severe pain associated with extreme thirst and vomiting. At first the vomiting occurred only at night, about one or two o'clock, the vomit being large in quantity and very acid. Lately he has been vomiting two or three times a day, usually from two to four hours after meals.

Physical Examination.—Chest intact, liver normal, stomach and descending colon full of gas. Knee-jerks present, pupils respond to light and accommodation. Examination of stomach contents after Ewald's test meal shows that free hydrochloric acid is present in excess, Töpfer's test giving an acidity of 44, total acidity 56. His urine was always alkaline after an attack of vomiting, but did not at any time contain sugar or albumin.

Jan. 24. Last evening, five and a half hours after supper, shooting pains began in his epigastrium, and extended through to the subscapular region. In seven and a half hours after supper he induced vomiting, which did not relieve the pain, and he did not sleep until five o'clock in the morning. The vomited matter presented a clear appearance and contained no food particles. Free hydrochloric acid was present, Töpfer's test giving an acidity of 28, total acidity 56. Erythrodextrin was present, but there was no trace of sugar.

Jan. 25. He ate for dinner last evening roast beef and toast and experienced no pain or vomiting during the night and slept well.

Jan. 26. Last evening he again ate roast beef and toast for supper. Two hours after this meal he had severe pain and vomited several times. Urine this morning alkaline.

Jan. 29. He ate for supper last night roast beef, dry toast and boiled rice. He had no pain or vomiting during the night. This morning, before he had eaten anything, I obtained by expression two ounces of liquid mixed with mucus; but the expressed fluid did not contain any food particles. I then washed his stomach, and found no rice grains in the wash water. Examination of the expressed fluid showed that free hydrochloric acid was present, Töpfer's test giving an acidity of 20, total acidity 32. No trace of sugar was found. The only point which throws any doubt upon the genuineness of this case is the history of the previous hemorrhage from the stomach. This patient left for home on February 6, that is, fourteen days after I first saw him; and since that time I have no written history of his case.

In hyperesthesia of the stomach, the pain does not appear ten or twenty minutes after taking food, as in ulcer, but immediately after eating; it follows the ingestion of liquids as well as solids, and is only partially relieved by vomiting. There is no circumscribed spot of tenderness; but the whole epigastrium is sensitive to pressure (Fenwick).

In nervous gastralgia the pain is intense; either sharply localized or diffuse. Patients double themselves up to relax the abdominal muscles; and avoid deep breathing, coughing or speaking aloud. The face is pale, distorted with pain and covered with cold sweat; and there may be a condition of collapse, with a sensation of impending death, and attacks of unconsciousness. Sometimes the attack ends suddenly with vomiting; at other times the normal condition is restored gradually (Ewald).

In biliary colic the attacks of pain appear only at intervals, and have no relation to the taking of food. The pain comes on abruptly, and is chiefly referred to the right hypochondrium and umbilical region. There is usually tenderness over the situation of the gall-bladder; but pressure upon other parts of the abdomen often affords some relief. Chills and fever are common symptoms. Severe vomiting frequently occurs during a paroxysm; but emptying the stomach does not relieve the pain. Jaundice is apt to follow an attack (Fenwick).

The gastric crisis of tabes is thus described by Charcot: "Suddenly, and frequently with an attack of fulminating pains, the patient complains of pains which begin in the groins, ascend along

both sides of the abdomen to the epigastrium where they become fixed. At the same time there is almost uninterrupted and exceeding painful vomiting, the vomit consists at first of food, later of a mucous fluid which is sometimes mixed with bile or tinged with blood. This is accompanied by marked nausea and vertigo as well as by cardialgic pains which at times reach a terrible degree of intensity. These gastric pains may appear at the very beginning of the disease and then belong to the so-called pre-ataxic symptoms, but they may not disappear even when the disease has reached its full development with complete ataxia."

In cancer of the stomach pain is the most constant of all the symptoms, occurring, according to Brinton, in 92 per cent. of all cases. The pain begins at a comparatively early date and never entirely disappears, though there may be remissions and exacerbations. It is not localized to one spot, does not depend on the taking of food, has not the severe gastralgic paroxysms of ulcer and is not relieved by vomiting or by the completion of digestion.

The pain of gastric ulcer usually comes on from ten to twenty minutes after the ingestion of food, reaches its maximum at the end of two hours and disappears at the completion of gastric digestion. Frequently, however, vomiting occurs soon after meals, and this generally affords relief. In rare cases, the pain becomes continuous and, according to Fenwick, if the ulcer is situated near the pyloris, and is adherent to the pancreas, the distress is chiefly experienced in the intervals of digestion; and is temporarily relieved by food and draughts of water. I believe, however, that pain may be caused, two or three hours after meals, by a hyperacid juice coming in contact with the ulcer, and this condition is also temporarily relieved by food or alkalies.

In suppurative or perforating appendicitis the patient is seized with violent pains in the abdomen which at first may be felt either over the entire abdomen, on the left side of the abdomen, or in the epigastric region, but very soon they settle in the right iliac region (Einhorn).

In regard to pain in the epigastrium, resulting from disease of the pancreas, I will simply quote from Robson and Moynihan on Diseases of the Pancreas, a work published in October, 1902: "Pancreatitis may be acute, subacute or chronic." Fitz says, "Acute pancreatitis is to be suspected when a previously healthy person or sufferer from occasional attacks of indigestion is suddenly seized with violent pain in the epigastrium followed by vomiting and collapse, and in the course of twenty-four hours by a circumscribed swelling, tympanitic or resistant, with slight rise of temperature."

"Between subacute pancreatitis and acute pancreatitis no hard and fast line can be drawn. The former has usually a sudden onset with acute pain and vomiting associated with constipation; but the collapse is not so marked as in the acute form, and may even be absent. The upper abdominal region does not become so rapidly swollen, and vomiting is less severe, and less prolonged. At other times the onset may be more gradual, although the symptoms may be similar. Tenderness over the pancreas is well marked, and, on account of the tympanites being less than in the acute form, it may be possible to feel the swollen gland, especially under an anesthetic. Constipation gives place to diarrhea, and pus or blood may be noticed in the stools which have a very fetid odor. The pulse is less rapid and less thready than in the acute form, and the temperature is more regular. We have seen the temperature reaching 104 and 105° F. and yet the pulse to vary between 90 and 100. The morning temperature may be normal and the evening temperature high for several days or even weeks. The pain occurs in paroxysms, but there is also a constant dull pain at the epigastrium. The patient may lose the more urgent symptoms and appear to be really improving; but the loss of flesh and feebleness continue and relapses usually occur, leaving the patient more and more feeble until death supervenes from asthenia. Albuminuria is pretty constant, but glycosuria is rarely present, and lipuria is an unusual symptom. Chronic pancreatitis is quite distinct from the acute or subacute form, although it is possible that some of the latter cases end in chronic interstitial pancreatitis. As clinically seen, it usually arises by extension of the inflammation from a chronic catarrh of the pancreatic duct extending from a gastro-duodenal catarrh, though it is frequently associated with biliary or pancreatic lithiasis or with gastric, pyloric or duodenal ulcer. Its course varies. The onset may be quite gradual and painless, or it may be ushered in by a severe pain at the epigastrium, followed by jaundice resembling a gall-stone attack, and associated with nausea and vomiting, and perhaps followed by a feeling of chilliness or even a rigor. The pain, however, is not over the gall-bladder, and does not pass around the right side to the subscapular region, but is central, and passes backward to the mid-scapular region or around to the left side; thus resembling stomach rather than gall-bladder pain. Tender spot is usually above the umbilicus in the middle line, and not over the gall-bladder, as in cholelithiasis. When once jaundice has come on it tends to deepen with each attack, until it becomes continuous and chronic. The paroxysms of pain may be repeated more or less frequently, or there may be no paroxysmal pain, merely a dull ache deeply seated, burning and boring in character. A swelling of the pancreas may sometimes be made out, but as the recti are rigid because of pain and tenderness in the epigastrium, it can usually only be discovered under anesthesia. Loss of flesh and strength are well-marked symptoms in all cases. Vomiting in some cases may be absent, but there are usually a want of appetite and flatulent dyspepsia, and always a sense of fulness and weight at the epigastrium

for some time after food. Jaundice is not necessarily present at first, though it is usually present at some stage of the disease and is often well marked; but, as was pointed out some years ago by Claude Bernard and by Dr. Walker, of Peterboro, the stools are white, even when the pancreatic fluid alone is absent from the intestine. Diarrhea is often present and the stools are offensive and may be fatty. Albuminuria is common, and glycosuria may occur, but the latter is probably only present in cases where the whole gland is affected or where the islands of Langerhans are involved. Fever may be absent, but in some cases the temperature runs a hectic course, always rising in the evening and falling in the morning. This is especially the case where ague-like paroxysms occur.

In Addison's disease there is often intense pain in the epigastrium, radiating to the hypochondriac regions and sometimes by reason of its intensity dominating all other symptoms of the disease. Previous to the appearance of the digestive disturbances and epigastric pain there is, however, a permanent sense of weakness and exhaustion, the lack of power and debility frequently presenting a striking contrast to the relatively good general appearance of the patient and the abundance of abdominal fat (Neusser).

THE SIGNIFICANCE OF PUS AND BLOOD IN THE URINE.*

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There is nothing unique, sensational or pretentious in this subject. The clinical significance of pus and blood in the urine may interest only a few, yet, if I have observed correctly, these physical phenomena receive but scant consideration. Special workers in genito-urinary surgery have for the last fifteen years written eloquently of, and demonstrated skilfully, the improvements in diagnosis in this line, and yet many do not realize that in diseases of the urinary organs, more perhaps, than in any other system in the body, success depends upon an early and accurate diagnosis and prompt interference. In the entire category of diseases of the urinary organs, pyuria and hematuria are more constantly present and more diagnostically significant than any other symptoms. This affords sufficient reason for a close analytical study of these symptoms.

Pyuria.—Given a specimen of urine containing pus, the clinician's duty is to determine the source of this abnormal constituent and there, possibly, to discover its cause and direct the treatment. That the finding of the court of inquiry may be errorless, all evidence, direct and circumstantial, must be taken.

Family history has its bearing, an hereditary predisposition to tuberculosis, rheumatism or cancer should be considered. More especially should we ascertain the personal history of the patient. This, of course, is significant when it reveals diseases of the urinary organs; yet it is none the less important to take note of certain constitutional ailments in the course of which complications involving the kidneys occur.

If we will proceed in this systematic manner, we are directed in our search to the seat of trouble and greatly aided in determining the etiological pathology. When possessed of all collateral information obtainable, we should in every case of pus in the urine conduct our examination from the meatus urinarius inward along the urinary tract until the seat of disease is discovered.

Urethra.—In both male and female, pus from urethral disease ordinarily flows spontaneously from the meatus, or may be squeezed or expressed therefrom. In the male, in deep-seated urethral inflammation, the pus may not be in sufficient quantity to be so detected. You may then employ the "two-glass" test, *i.e.*, have the patient to void urine first into one glass, then after an ounce, say, is passed, catch the remainder of the urine in a second glass. If the pus is from the urethra, the urine in the first glass contains pus and shreds, while that in the other is clear. If both specimens are cloudy, it shows that there is some involvement internal to the vesical sphincter. In women, especially those infected with gonorrhea, pus may be squeezed from the open mouths of Skene's ducts alongside the *meatus urinarius* or a peri-urethral abscess may discharge through the meatus.

Pus of urethral origin is thus easily recognized. Coupled with the history and associate symptoms, the diagnosis is readily made. Should, however, our investigation eliminate all pus producing diseases of the anterior urinary tract and the catheter specimen of vesical urine contain pus, we must now enter upon a most careful analytical search to determine its source. Is the pus from the bladder? Is it from the ureters or kidneys, or, perchance, may it come from some extravesical but communicating suppurating focus?

The chemical analysis of the urine gives us our first clue. If the urine be alkaline, the pus is probably of bladder origin. Rosenfeld* claims that "the greatest differential point is the quantity of albumin in the urine. If the pus proceed from the bladder, the albumin is low; about 1.5 per cent. or less. If from the kidney, 3 per cent. or more." His explanation is that the kidney, which is the seat of purulent infection, is almost certain to secrete albuminous urine.

A microscopical examination of the centrifugalized urine containing pus will also show an abundance of epithelia. Many expert urologists attach the greatest consequence to the character of epithelium in localizing the seat of inflammation. Guiteras† holds that the kind of epithelium points quite clearly to the seat of inflammation; and Manley contends that upon it alone we may elucidate the diagnosis, while Osler, Musser and

* Read before the Middle Tennessee Medical Association, November 19, 1903.

* La Sem. Med., Mar. 26, 1902.
† Medical Record, Nov. 8, 1902.

Tyson all practically disregard it as determining the source of pyuria. We should be inclined to hold that an abundance of vesical pavement epithelium would indicate cystitis. We cannot, and should not rely upon the chemical and microscopical test. They are merely aids to a diagnosis. There are several intravesical diseases supplying pus to contaminate the urine in the bladder.

Prostatic enlargement in old men with residual urine invites infection by catheterization or otherwise. The pus from prostatic abscess and suppurating seminal vesicles in young men may overflow the sphincter and contaminate bladder urine. Careful rectal and bimanual examination should discover these conditions.

Inflammation of the bladder characterized by frequent and painful micturition, pyuria, hematuria, etc., is almost universally held to be a very common affection.

The revelations of the cystoscope have convinced many of us that the teaching of Kelly is correct, that "universal cystitis is a very rare affection, especially in women." It is quite a common picture to find the trigonum inflamed; but rarely the entire bladder; and that condition so frequently designated as cystitis, is due to some definite intravesical disease other than mere infection, or else a localized inflammation. But more frequently it is irritability of the bladder, symptomatic of disease elsewhere. Yet inflammation of the bladder is one of the most common sources of pyuria, recognized by its classical symptoms, presumably, and definitely determined only by cystoscopic examination.

After infection, the most common cause of vesical pyuria, is a foreign body in the bladder, usually a calculus. Its presence is readily recognized by the sound, bimanual examination and cystoscopy. In cases of enlarged prostate and pouching of the bladder, a stone may escape ready detection and in these subjects, cystoscopy is often very difficult and unsatisfactory on account of the hemorrhage. In these cases where the symptoms point very directly to vesical trouble, and in which the diagnosis is not determined by the ordinary means, Fenwick advocates, and has employed for ten years, supravesical cystoscopy—a method of examination not likely to become popular.

Ulceration of the bladder is rarely a primary disease, but its symptom—pyuria—may be one of its first clinical manifestations. It is usually of tuberculous nature, secondary to tuberculous infection of the genitals or kidney. Yet, we may find, as both Casper and Newman have taught, a single, simple ulcer of the bladder. Tumors of the bladder seldom cause pyuria in their early stage, unless they obstruct the urethral opening and give rise to urinary retention. Hemorrhage more frequently proclaims their presence.

Pyuria is the outcome of infection, introduced from without or occurring from the bowel under inviting conditions, and is a late symptom of vesical tumor. The presence of vesical neoplasms is made known by the symptoms, hematuria, vesical pain and tenesmus, reflex renal pain and the detection of the tumor by bimanual and cystoscopic examination. If, in our examination, we have eliminated all vesical sources of pyuria, we must bear in mind that pus of extravesical origin often contaminates the urine. Suppurating foci in the pelvis pyosalpinx, dermoid cysts (Kelly), appendicitis (Keene), etc., may discharge purulent matter into the bladder. We command through the cystoscope such a thorough view of the entire inner surface of the bladder when that organ is inflated, that there should be no difficulty in discovering such an extravesical source of pyuria.

But to proceed along anatomical lines with our examination, there may be nothing in the bladder to account for the presence of pus. Where, then, should we look for the source of supply? The ureters are rarely the source of primary infection. They become involved by continuity with an ascending infection from the bladder, or descending infection from the kidney.

Renal suppuration inducing pyuria may be recognized in one of three ways: (1) By seeing the purulent flow from the ureteral orifice through the cystoscope; (2) by microscopic examination of the urine obtained from each kidney with the ureteral catheter or segregator. With bladder clean and properly inflated either with water or air, preferably the latter, the vesical orifice of the ureter is brought into view. The appearance of the mucous membrane about the orifice often tells the tale. If a ureter is in the habit of discharging purulent urine intermittently or continuously, its lips and surrounding mucous membrane are eroded, mammillated and congested. This is quite suggestive of an irritating discharge. In comparison with the healthy side, it may be conspicuously different. More conclusive, however, is it to see the purulent urine flowing from the orifice, while the opposite side puts forth intermittent jets of clear urine. It is equally important to find, upon different examinations, that sometimes there is no urine from one orifice, while the other discharges physiologically. This intermittent arrest of the ureteral discharge of purulent urine is quite diagnostic of pyonephrosis.

In order that we may observe pus or cloudy urine from the ureteral orifice, there must be quite a liberal admixture of pus. Microscopical quantities of pus may indicate just as serious a lesion as a copious discharge, and, therefore, we cannot always rely upon the cystoscopic view. If, then, we are still undecided as to the source of the microscopical quantities of pus, having eliminated all question of its vesical origin, what means have we of determining its renal source? The Harris segregator is an uncertain instrument. I have repeatedly tried it and regard it dangerously misleading. The only positive way of determining the renal origin of pyuria is, as before stated, in seeing the puriform fluid flow from the vesical orifice of the ureter, or else

microscopically examining the urine obtained through the ureteral catheter.

This leads us to the consideration of the last part of our subject: What renal conditions may give rise to pyuria? The common suppurative diseases of the kidney, viz., pyelitis, pyonephrosis, pyelonephritis and renal abscess may all intermittently or continuously mingle their pus with the urine. It is not the purpose of this paper to enter into the causes and symptoms of these conditions in detail, but let it suffice for the present, to say that pyelitis is frequently a secondary infection, ascending in character, consequent upon some obstruction and infection of the lower urinary tract. And so with pyelonephritis, while pyonephrosis is more frequently due to calculus, and renal abscess to the localization and pathological action of the *Bacillus tuberculosis* or some of the common pyogenic organisms. The microscopical examination of the purulent urine withdrawn through the ureteral catheter, will in a great measure differentiate these several conditions by showing the character of the epithelium, the character and quantity of cylinders and furthermore, the presence of the specific microorganism.

In pyelitis, the pyuria is constant; yet, when the ureteral catheter is introduced, the first urine collected will show the greater abundance of pus. If this urine is microscopically examined, epithelium from the pelvis of the kidney only may be found. But it is not by the ureteral catheter alone that we make the diagnosis of pyelitis. The history of the patient is valuable. We know that pyelitis is generally secondary to infection in the lower urinary tract, consequent upon obstruction. Hence it is quite common in those exhibiting urethral stricture, prostatic enlargement, vesical tumors and cystitis. Nor must we lose sight of the fact that it occurs as an infrequent sequela of certain exanthemata. It is usually an infection due to the *Bacillus coli communis.*

A form of pyelitis—and subsequently pyelonephritis—is occasionally met with in pregnancy. I have seen several such cases; one with Dr. Frank Glenn, of Nashville, another diagnosed, but not proven, with Dr. Witt, and a third case, recently, with Dr. McCampbell, of Nashville. It is a complication seldom observed until the latter months of pregnancy, attributable to compression of the ureter by the gravid uterus, and to infection with the colon bacillus. When a pregnant woman develops lumbar pain of sudden onset, usually with severe symptoms, viz., local tenderness, chill and pyrexia, with acid pyuria, we should think of this complication. It rarely requires surgical intervention, but *may* do so.

Pyelitis in children is of sufficient importance to deserve mention. It is especially common in infant girls. It is a colon bacillus infection and is quite frequently noticed as occurring after some inflammation about the anus or genitals. The points that guide us to its diagnosis are: Pus and mucus in the urine, the acid character of the urine, great variation in the temperature, pain on being moved, rigid lumbar muscles, and what is more to the point, says Thompson, "Unlike any other disease, except malaria in infancy, it causes rigors." As a complication of typhoid fever, pyelitis may occur. Garnier and Lardennois* formulate the following conclusions: "That typhoid fever can give rise to renal suppuration, pyelitis or pyonephrosis; that the signs often appear in the course of the fever, but it is usually not until after the convalescence that the diagnosis of renal involvement is made."

Pyelonephritis.—A suppurating kidney usually succeeds upon a pyelitis, but here the secretive structure of the kidney is involved and the urine contains, in addition to pus, epithelia from the tubules, tube casts and fragmented blood corpuscles. The serious constitutional involvement, the fluctuating temperature, the succession of chills, vomiting, general lethargy, a tendency to somnolence, marked decrease in the amount of urine, even to anuria, proclaim the character of this grave form of renal suppuration.

Pyonephrosis.—A retention of pus in the pelvis of the kidney may be suspected when the urine voided shows the presence of pus intermittently. The diagnosis of this condition becomes beautifully accurate, sometimes upon simple cystoscopic examination. A patient recently entrusted to my care by Dr. Thompson Anderson, of Nashville, was subjected to several cystoscopic examinations. Upon some occasions pure pus was seen to flow from the vesical orifice of the ureter. At other times nothing would pass, although the ureteral orifice would be kept in the field of vision for several minutes.

If the obstruction causing the pyonephrosis will permit the passage of a ureteral catheter, pus and blood in drops, drams or ounces may be withdrawn. If to this examination we link the symptoms of those conditions causing ureteral obstruction, such as calculus, movable kidney or ureteral compression, we should have no difficulty in arriving at a diagnosis.

Tuberculosis of the kidney involving its cortical structure, may not give rise to pyuria, but when the abscess opens into the pelvis of the kidney, the urine is contaminated. This urine is infectious.

Not infrequently we find the tuberculous ulcers in the bladder and ureters. A presumptive diagnosis of this variety of renal tuberculosis may be made without a detectable number of bacilli in the urine, but the only conclusive evidence of renal tuberculosis is in finding Koch bacilli in the renal urine. Renal urine may become contaminated with pus from renal tumors, cystic and solid, echinococcal growths or from extrarenal sources, as in communication with appendiceal, perirenal, gall-bladder and other suppurating foci.

In conclusion, we must regard pyuria only as a symptom of many pathological conditions, involving any of the several parts of the urinary tract. It is only of diagnostic value when we

* La Presse Médicale, April 13, 1901.

ascertain its source; and he will be the most successful in his treatment who is most searching in his investigations.

Hematuria.—The appearance of blood in the urine is alarming to the patient and he insistently demands of the attending physician that he offer an explanation of its cause, and afford means of relief. The careful and conscientious attendant realizes that it is only a symptom of a pathological process somewhere in the urinary tract, and should proceed to ascertain the seat of lesion by exclusion. There are certain facts possessing general diagnostic value in hematuria, and to these we should give consideration. The family history, as we shall show later on, has its bearing. Indeed, there is a form of hematuria known as congenital of familial. Other individuals have, by inheritance, tuberculous, gouty or rheumatic tendencies. Constitutional conditions not infrequently are the cause of hematuria. Place of residence is of importance; in tropical countries, parasitic hematuria is not infrequent. Previous illnesses and conditions may direct us in the right lines of inquiry. It is quite important that we take cognizance of the age of the patient. It is further important that we ascertain under what conditions the blood is observed in the urine. Does it flow spontaneously from the penis as in urethral inflammation? Is it expressed by a contraction of the bladder at the close of micturition as in prostatic and vesical troubles? Does it occur symptomlessly, or is its flow preceded or attended by pain pointing in the one case to tumor, in the other to calculus? Is it augmented by exercise, and allayed by rest, as in renal calculus? Is it associated with active disease phenomena in other organs, as we find tuberculosis of the kidney often complicated with similar deposits in the lungs and pleuræ? So do we find nephritis with hemorrhage, complicated with cardiac changes, and an enlarged spleen may explain the hemoglobinuria of malaria. All facts bearing upon the general and local conditions of the patient must pass under our review, for be we ever so skilful in our investigations, there will remain a few cases in which the pathogenesis is obscure.

While I attach the greatest value to the cystoscope and ureteral catheterization in determining the source of hematuria, I am not one who is prone to hastily attach my faith to new things, to the utter disregard of old and tried methods. "The friends thou hast and their adoption tried, grapple them to thy soul with hooks of steel." Furthermore, the cystoscope is not in the hands of every practitioner; there are conditions which preclude its use, and who among us will dare assert that ureteral catheterization is an easy performance? Therefore, let us be "old fogy" enough to consider for a few moments, the simpler methods of determining the source of blood in the urine; proving our conclusions, when necessary and feasible, by cystoscopy and ureteral catheterization. To avoid repetition, we will take up these questions separately in considering hemorrhage of the several parts of the urinary tract from without inward.

The detection of blood in the urine is usually simple enough by ocular examination of the specimen. The color of the urine mixed with blood varies from a rosy tint to scarlet red, dark brown or black according to the quantity of blood and the length of time it is retained after its escape from the vessels. The chemical tests, while accurate enough, are more troublesome than the microscopical test, therefore the microscope is preferred for the detection of minute quantities of blood, insufficient to colorize the urine. The presence of blood having been determined it is now our duty to ascertain its source.

When blood occurs from the urinary tract anterior to the urethral muscle, the blood, if in sufficient quantity, will spontaneously escape from the meatus or the "two-glass" test may be tried. If the hemorrhage is from the prostatic portion of the urethra, the blood is passed with the first portion of the urine only; if the bleeding is of small quantity. If the bleeding is more copious, the pressure of the blood overcomes the resistance of the internal sphincter, and the bladder urine is admixed with blood. In general we may say that urethral hemorrhage occurs independently of micturition, or with the first portion of the stream, and, if profuse, is passed in long thick clots. In prostatic hemorrhage of moderate amount, there is blood both at beginning and close of urination. If profuse hemorrhage, it mixes with the bladder urine.

I shall not enter into detail upon the causes of urethral and prostatic hemorrhage—they are known to us all—but proceed at once to the consideration of hemorrhage from the bladder. The common causes of hemorrhage from the bladder are: Cystitis, stone, neoplasm and tuberculous ulceration. Cystitis, as we have elswhere remarked, rarely develops except as a complication of other conditions. The history of the patient, the opportunity for instrumental infection, followed by the distressingly acute symptoms—polyuria, dysuria, pyuria, hematuria and the constitutional impression—as denoted by general discomfort, chill and fever, are usually sufficient to declare a diagnosis in the acute stage. In the chronic condition, cystoscopy is necessary to eliminate simulating conditions.

A stone in the urinary bladder rarely causes profuse bleeding; the blood is intimately mixed with the urine which also contains mucus, pus and crystals. The hemorrhage is induced by exercise and is allayed by rest, and oftentimes the bleeding is most profuse at the close of micturition. These facts, accompanied by the other classical symptoms, point very clearly to vesical calculus. The positive diagnosis of its presence is made by bimanual examination, sounding and cystoscopy.

Tumors of the bladder in a large percentage of cases,—84 per cent. says Fenwick—make known their presence by the occurrence of hemorrhage. The bleeding occurs at the end of urination. It is spontaneous and unaccompanied by other

symptoms. It may be insignificant in quantity, rarely profuse at the outset. This symptomless hemorrhage is characteristic of vesical tumors. It may continue for a few days and then cease. Its recurrence may be postponed for weeks, months or years. It is in some measure controlled by rest. The feature to be noted in connection with it is, that at first hematuria from bladder tumors is unaccompanied by other symptoms. In advanced cases we have engrafted the symptoms of infection upon obstruction to the outflow of urine and also of ureteral obstruction as signalized by the renal ache. We should try and make our diagnosis by bimanual examination. The great danger to be feared in tumors of the bladder, is infection. Therefore, cystoscopy must be most aseptically conducted. The hindrances to this method of examination are sometimes insurmountable; we may find it difficult to get the bladder sufficiently clear of blood; the beak of the cystoscope, though judiciously handled, excites additional hemorrhage, and when the growth is large, we may be unable to pass the cystoscope or succeed in inflating the bladder. It is, however, by the aid of this instrument that we gain the most accurate idea of the character, location and seat of these growths.

Tuberculous Cystitis.—When cystitis develops without some apparent cause and persists in spite of treatment, we should think of the possibility of it being tuberculous. In such cases, frequent urination and hematuria, moderate in amount, are the leading symptoms. Our diagnosis rests upon the discovery of tuberculous lesion in the epididymis, prostate, or seminal vesicles, or, as I believe, more frequently in the kidney. The cystoscope shows tubercles, disseminated or grouped over the mucous surface of the bladder, or else ragged, irregular necrotic ulcers, and the final and conclusive test is finding tuberculous bacilli in the urine. In pregnancy, the pressure is sometimes so great that the vesical veins become varicose and rupture. This is one of the exceptional causes of hematuria during pregnancy. Similar conditions have been recognized in fibroid and other abdominal tumors.

Renal Hemorrhage.—The diagnosis of hematuria of renal origin is based upon the following points: (1) If the blood is thoroughly mixed with the urine, appearing with the first and terminal flow, it is presumptive, though not conclusive of renal hemorrhage. (2) When the bleeding is profuse from the kidney, long worm-like decolorized blood clots are passed. They are much thicker, lighter in color, than the clots passed from ureteral or bladder hemorrhage. In one instance in my own experience, the clots, some three inches long, were mistaken for a lumbricoid. Mr. Morris records an instance where he opened a bladder suprapubically and removed a mass consisting of a cord the diameter of a pen holder, 6½ inches in length, of unbroken blood clot. The source of microscopical quantities of blood is not so easily located. If the blood cells are found crenated and fragmented, it rather indicates their renal origin. A great proportion of albumin would further suggest the kidney as the seat of trouble, but the only conclusive test of renal hemorrhage is the view obtained through the cystoscope or the examination of a specimen of urine from the ureteral catheter. It must not be inferred from this statement, that it is necessary at all times to subject a patient to intravesical examination to satisfy ourselves clinically, of the renal source of hematuria. There are many symptoms and physical signs occurring in the course of renal pathology, upon which we may make a working diagnosis without resorting to these modern and refined methods. Furthermore, the amount of hemorrhage may preclude the intravesical examination.

There are many causes for renal hemorrhage: Calculus, traumatism, tumors, tuberculosis, nephritis and movable kidney are the most common; hematuria is also met with as the result of the mechanical irritating effect of uric acid as a complication of various constitutional disease, especially the exanthemata and malaria. Exceptionally it occurs during pregnancy or following the administration of certain drugs; and in tropical countries, from parasites. There is a class of hematurics in which we are unable to ascertain the cause described by Klemperer as "essential" or "angioneurotic." In this class may be included cases of neuralgic hematuria and hemophiliacs. We do not presume in every case to be able to assign the cause for the hematuria, but the quantity, the character of bleeding, the time of its occurrence, conditions exciting it, other urinary phenomena and the general symptoms attending it, will in many instances enable us to very definitely declare a pathological diagnosis.

Denaclara* says, "In tumors of the kidney, hematuria occurs as a symptom in from 40 to 68.88 per cent." It has the following characteristics, according to Guilet: (1) it is often spontaneous; (2) it is not influenced by repose or exertion; (3) it occurs at any period of the disease; (4) it is repeated at variable intervals; (5) it is usually profuse; (6) lasts from one to six days; (7) it is often preceded by pain. As further aids to the diagnosis of renal tumor, we find the presence of tumor, the age of the patient, perhaps glandular involvement, in many cases varicocele, and often a very serious grade of constitutional cachexia.

Renal Calculus.—Hematuria due to a stone in the kidney is traumatic in nature. The hemorrhage proceeds from the pelvis of the kidney usually. The urine, therefore, does not contain blood casts. Of course, exceptionally the calculus may be imbedded in any portion of the cortical substance of the kidney, exciting a nephritis, the urine showing casts and albumin. Other symptoms precede the occurrence of hemorrhage as a rule. The amount of blood is usually very slight, generally microscopic in quantity, though it may be copious. The blood appears after exercise and disappears on rest; is quite noticeable

* Thèse de Lyon, 1899.

after an attack of renal colic. A small, rough stone may excite profuse bleeding.

Renal Tuberculosis.—Pousson believed that tuberculosis of the kidney, like pulmonary phthisis, passes through a stage of congestion before it reaches suppuration. Newman records cases of hematuria of four years, and one of thirteen years before evidence of renal tuberculosis became decisive, and I have seen one case—patient of Dr. Harrison, of Columbia—in which hemorrhage antedated by six years all other symptoms. In support of this idea, of congestion, hematuria is often the earliest symptom of renal tuberculosis. Therefore, a spontaneous appearance of blood in the urine, unaccompanied by other symptoms, should suggest renal tuberculosis; but usually these first hemorrhages are microscopical in quantity, and we are led to their detection only when there is frequent urination, especially at night, which is a strong suggestive symptom of renal tuberculosis. In the more advanced stages, when there is breaking down of the tuberculous abscess, hematuria is more constant and may be copious. It is mingled with pus and débris. As a rule, the hematuria from tuberculosis is scant in quantity, intermittent in its appearance and is not excited by exercise. In two instances I have observed alarming hemorrhage from tuberculous kidneys. We may infer the nature of the exciting cause, if the individual is a female somewhat under middle age; if she has complained of polyuria; has hectic phenomena and digestive disturbances. Further suspicious evidence would be the detection of healed or active tuberculosis in other organs. A tuberculous kidney is not necessarily an enlarged kidney, and it may be quite movable. Microscopically, the urine shows leucocytes, fat globules, pus, red corpuscles and shrunken epithelium. If the bacilli of Koch are found, it is conclusive evidence of the tuberculous process. Yet, thus far, we have not determined conclusively that the seat of trouble is in the kidney. The findings in the bladder urine may be sometimes misleading. We can definitely locate the source of the hemorrhage only by cystoscopy and perhaps it may be necessary to use the ureteral catheter. These methods will definitely incriminate the guilty organ, and, what is of equal importance, show the condition and efficiency of the other kidney.

Nephritis.—Abundant unilateral renal hematuria may occur in subacute and chronic nephritis. Senator does not believe in unilateral Bright's disease. Belfield has collected 55 cases of chronic renal hemorrhage proven by one of the sure ways of diagnosis; 18 of these showed chronic nephritis. This, then, is one of the common causes of hematuria. These cases are especially suitable for the Edebohls' operation.

Movable Kidney.—It is no unusual thing to meet with hematuria in movable kidney. It is a passive hemorrhage, generally, attributed to torsion of the renal vessels. Movable kidneys do not twist their pedicles; they simply glide downward, and the explanation of the passive congestion is probably traction on the renal veins, inducing a passive hyperemia. This at first, as Newman explains, leads only to albuminous urine. Under increased hyperemia, blood appears. Cabot* records a case in which the blood lost reached such proportions as to induce serious anemia. It was controlled by placing the patient in Trendelenburg posture, and recurred when she assumed a standing position. This was a unique case, for, as a rule, the hemorrhage in a movable kidney, is only microscopical in quantity and not an essential feature in the diagnosis of this abnormality. Rovesing† reports a case of passive hematuria of the kidneys due to tight lacing.

Hematuria of Pregnancy.—In the Medical News, May 13, 1899, our President, Dr. Young, records an interesting case of hematuria of pregnancy. This phenomenon is very rare when due to the gravid state of the woman alone, excluding other specific causes. Bouman‡ has collected 17 cases. The pathogenesis may be ascribed to venustasis due to compression of the large abdominal vessels and of the ureter by the child's head in the pelvis. Chievetone regards it simply as a symptom of toxemia due to hepatorenal insufficiency. Of course these cases of hematuria during pregnancy become interesting only as a class when all recognizable causes are excluded. Ordinarily, constitutional treatment is sufficient. The hemorrhage ceases after delivery. Copious and uncontrollable hemorrhage may call for the interruption of gestation.

Gout and Rheumatism.—Hematuria may occur in rheumatism and gout. These cases are regarded by Musser as traumatic, analogous to calculus hematuria. An excess of salts mechanically irritates the kidney. The blood is microscopical in quantity, but none the less important.

Congenital, Hereditary or Family Hematuria.—In the *Lancet,* May 3, 1902, Guthrie reports that he has the knowledge of this form of hematuria in 12 persons, 8 of these were brothers and sisters or first cousins. Their mothers are two sisters who are themselves subject to this complaint. These two sisters had two brothers, both of whom were similarly affected. The author refers to Attlee's three cases of recurrent hematuria in one family. The characteristics of this form of hematuria are: (1) It is hereditary, familial and congenital. (2) It may be persistent for many years; it may be intermittent. (3) The paroxysms of hematuria are usually accompanied by pyrexia, headache, vomiting and lumbar pains. Duration of attacks usually several days. There may be months or years between attacks. (4) Not associated with ascites or the ordinary signs of nephritis. (5) It is not due to an excess of salts, nor is it attributable to any known eruptive disease.

We are all familiar with hematuria from certain drugs: Rhubarb, turpentine, etc., but I

* Boston Medical Journal, Feb. 27, 1902.
† British Medical Journal, Nov. 10, 1898.
‡ Monatsschrift f. Geb. u. Gyn., June, 1903.

deem it of some importance to call your attention to an observation of Langdon Brown* that it is now frequently suggested to administer urotropin throughout the course of enteric fever to prevent renal complications. He records two cases in which 10 grain doses of this drug, three times a day produced pronounced hematuria. Occasional cases of hematuria, due to Bilharzia hematobia are reported.

There yet remains a class of cases in which unilateral symptomless hematuria occurs. These cases are variously classified as (1) idiopathic, (2) essential, (3) angioneurotic or symptomless hematuria. The French Congress of Urology under the presidency of Guyon, discussed this form of hematuria, and were unanimously of the opinion that the terms were unnecessary and obstructive—mere confessions of ignorance. Klemperer is one of the few authorities who hold to the angioneurotic theory. Fortunately these cases are now, since the introduction of the cystoscope and ureteral catheterization, becoming very rare. Fenwick† has shown that in some of these cases at least, the bleeding emanates from the renal papillæ. It is fair to assume that many of them have a definite, though undiscovered, anatomical cause. But we are not yet prepared to say there is nothing in the angioneurotic theory. In this rather tedious review of an elementary subject, my sole purpose has been to impress upon my hearers, the urgent necessity of a painstaking analytical investigation of their cases showing pyuria and hematuria.

Upon one's ability to discover the source of these pathological constituents of urine, will corresponding success in treatment follow; or, as someone has said, "He who diagnoses well, treats well."

NEURASTHENIA.

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Neurasthenia as a definite form of nervous disease was first described by Beard, of New York, in the *Boston Medical and Surgical Journal*, 1869, followed by a paper read before the New York Academy of Medicine in 1878; he further elaborated the subject in a work entitled "Nervous Exhaustion," which reached a second edition in 1890; later he published "Sexual Neurasthenia," where he attempts to place a number of different nervous troubles under the same heading, including hypochondria, hysteria and sexual perversion.

Neurasthenia is a disease most often found in hospitals in its uncomplicated form, but often accompanied by other morbid conditions which mask its symptoms, rendering diagnosis difficult. During the writer's connection with Mount Hope Retreat and also in private practice he has had the opportunity of observing a considerable number of cases, and he attempts in this paper to give a symptomatic picture of the disease for the benefit of the general practitioner, who is usually the first consulted by the patient. The treatment by the general practitioner is usually entirely symptomatic, consisting of bromides in increasing doses with the addition of hypnotics, the various coal-tar products and headache powders, with little or no effort to treat the underlying condition; the patient becomes worse or fails to improve, finally consulting a specialist or entering an institution.

These patients usually come from the city, though, perhaps, if the statistics of the relation of cases to the population from which they are drawn were obtainable, it would be found that there was little or no difference; many of the cases I have met with being farmers and country business men. In practically all cases, however, the disease affects those who work with their brains, and it is very rare indeed to observe it in the laboring classes, suggesting that want of physical exercise is a factor in its etiology. The disease appears in adult life, rarely in youth and probably never in children. In my experience there has been probably a greater proportion of cases among women than men, but this probably is incidental to the nature of the practice.

There are certain principal symptoms, or, better, stigmata, of the disease, some psychical, some physical,—a knowledge of which is necessary for a diagnosis.

Headache exists in about 90 per cent. of all cases, which has the peculiarity that it is at its worst in the morning, gradually decreasing as the day advances and disappearing at night, only to recommence the following morning; during the day there are usually slight ameliorations of the pain, especially at meal time, increasing again as digestion advances. The pain is a heavy, dull, numb feeling in the head, with perhaps occasional lancinating pains or paroxysms of intense agony. The decrease of the pain at meal time is of short duration, when digestion is at its height the pain is increased, accompanied by flushings of the face, giving the appearance of plethora, with a feeling of intense malaise and depression. Toward evening the headache declines; usually there is a severe attack after the evening meal, after which it may disappear entirely during the night, as long as the patient keeps the recumbent position; but on standing up it returns and in the morning commences again.

The headache is either bitemporal, surrounding the head like a vice, or more often it is in the occipital region, the whole of the back of the head to the nape of the neck having the sensation of a grinding or crackling, which may be so intense that the patient imagines he can feel the sensation with his hand. At other times the whole head is affected; the skull may feel too small for its contents; at others there is a sensation as if the brain were boiling; the forehead is flushed, giving a sensation of heat to the hand, the body temperature being normal, or nearly so.

* British Medical Journal, June 15, 1901.
† British Medical Journal, Feb. 3, 1900.

Though the headache ceases or lessens at night, the patient suffers from insomnia, which may be of two kinds. In one he falls into profound heavy sleep immediately on lying down, only to awake in two or three hours to spend the rest of the night in tossing about till morning, the victim of a thousand miserable sensations, turning from side to side from a feeling of discomfort, especially in the lower limbs, of shooting pains, prickling, stinging and general teasing sensations, followed by a feeling of numbness which is almost unbearable. He may doze for a short while at last, but is compelled to rise tired and unrefreshed, the headache returning as soon as he puts his feet to the floor. Should he doze for a few minutes the arm under the body becomes numb, paralyzed, dead; in a minute or two the sensation disappears, but the condition is renewed and he takes all sorts of uncomfortable positions to avoid its repetition, effectually dispelling any tendency to sleep; at other times the lower limbs appear to have a sort of shock or sudden contraction which is very disquieting. Other cases complain of a feeling of emptiness in the epigastrium, with gurglings in the intestines, more particularly marked toward morning. Urination is often frequent during the night, suggesting Bright's disease or diabetes, but there is no sugar in the urine and only traces of nucleo albumin are present. Under the above conditions sleep is evidently impossible, though toward morning he may pass into a doze or sleep for a short time, but is shortly compelled to rise as tired and miserable as when he went to bed.

The other form of insomnia differs from the above in that immediately after the evening meal he has apparently an almost uncontrollable desire to sleep, but once in bed he is wide awake, the entire night being spent in short snatches of semi-unconsciousness, he hears the clock strike every hour; the least noise seems to his tired senses magnified one hundredfold; the pressure of the bedclothes irritates him and he passes the whole night without any sleep which is of benefit to him. It is evident that the patient can have no desire for his daily vocations, the headache commencing as soon as he gets up and the day of misery and *ennui* repeats itself. Another peculiarity is that as the patient is dropping off to sleep he awakes with a sudden start and his rest is disturbed by "night terrors," delusions, and a feeling of dread.

Another symptom is a vertigo presenting special characteristics. It is not like the vertigo of Ménière's disease where there is a true loss of equilibrium and the patient falls—it is a sensation of emptiness of the head, accompanied by a weakness of the limbs; a cloud comes before the eyes, all appears gray with black moving spots, objects near and far are confused and seem to be on the same plane. These phenomena resemble accommodative asthenopia, which often coexists with vertigo; examination of the eye reveals little or nothing; the pupils may be dilated, usually equal in size, reacting a little slowly to light and the retina is normal. These attacks of vertigo are most apt to occur on the patient rising from the recumbent or sitting, to the erect position, or when any emotion is evoked, however slight. A form of agoraphobia may exist, the patient being afraid to walk along the street or to pass through a door, for fear the walls will fall upon him or an open space may produce intense sensations of fear. The vertigo shows itself most often in the morning, and like other symptoms it is less frequent during and immediately after meals, generally disappearing in the evening and never occurring in bed.

In some cases there are pains in the spinal column, either in the cervical or at the junction of the lumbar sacral vertibræ. The pains radiate in the former case toward the shoulders and arms, causing a sensation of weight and oppression; in the latter case the same feelings are experienced in the lower limbs. The patient locates the pain in the column exactly but examination reveals nothing, except perhaps a slight hyperasthesia; there may be sensations of feebleness and numbness suggesting paraplegia, but the sphincters are normal; the reflexes may be normal and equal on both sides, though exaggeration is not infrequent. The headaches and vertigo suggest organic brain trouble, the pains and symptoms from the cord suggest spinal trouble, and mental depression, insanity; and careful analysis of the clinical symptoms is necessary to form a correct diagnosis.

The stomach and intestines are also more or less affected in neurasthenia, suggesting auto-intoxication; there are a slowness and difficulty of digestion; on rising the tongue is coated, the mouth sticky, and the appetite poor; during eating and immediately after, the painful sensations are milder or they may disappear altogether —the general condition improving. A light breakfast is usually well digested, but it is necessary that another light meal be taken in an hour or two, or the patient will suffer. The condition of the stomach is one of continuous secretion of hydrochloric acid with a want of motility; it is therefore necessary that the neurasthenic be fed frequently at short intervals and on no account should he eat a large meal; although the hydrochloric acid is being continuously secreted in small quantities the glands are in a state of fatigue, and are therefore unable to respond to a demand for the excess of hydrochloric acid necessary for a large meal. After a test-meal the analyses give various results; usually the amount of free and loosely combined hydrochloric acid is normal or slightly low, though at times there is a marked hyperchlorhydria. The test-meal is never a very satisfactory method of diagnosis in a nervous patient. In the first place, the Salzer meal is not very appetizing and is more than the patient cares to eat, consequently the "psychic juice" is not secreted in full amount. The Ewald breakfast is not appetizing, especially with American bread; in Germany the "Brödchen" is much more pleasant to the palate, which may have something to do with the larger amount of free hydro-

chloric normally found in that country. To give a nervous patient a test-meal at 8 A.M., another at noon, and to draw his stomach at 1 P.M., during which time he is on a mental rack as to the terrible ordeal he is about to go through with the tube, is not calculated to produce normal digestion and give accurate results.

Judging from the urinary analyses in these cases one would consider that there was a marked hyperchlorhydria, and I believe that there are cases where not only the secretion is continuous to a greater or less degree, but that on taking a full meal there is a hypersecretion of hydrochloric acid which prevents proper peptic, and also retards pancreatic, digestion. In many cases the digestive symptoms are secondary to the nervous trouble, though careful attention to the diet and digestive organs mitigates the suffering, especially the insomnia. It is evident that no disease can be treated successfully unless the nutrition is normal, the absorption of partially digested proteids or imperfectly converted sugars cannot but be detrimental to the general condition. Tympanites and acid eructations follow a heavy meal consequent on the general atony of both the stomach and intestines, producing a certain amount of auto-intoxication, but the pathologic condition of the nervous system is often primary, the digestive symptoms disappearing as the patient improves. The intestinal troubles consist usually in obstinate constipation with occasional attacks of diarrhea in which, on microscopic examination, there will be found blocks of mucus, evidence of membranous enteritis, a very common accompaniment of neurasthenia. In women there is often a mucomembranous dysmenorrhea. The general condition of the patient suffers, he loses flesh rapidly, though in some cases the "embonpoint" is preserved.

The urine is clear, limpid and large in quantity, suggesting hysteria, though at times it may be less abundant and dark in color. The urea nitrogen is low, the ammonia and uric acid normal, but the residual nitrogen is markedly excessive, and there is usually a marked phosphoturia; the proportion of chlorides to nitrogen is below normal, while the carbon nitrogen factor is normal or low. Indol and ethereal sulphates may be high or normal, depending on the condition of the bowels, but the neutral sulphur is invariably high.

The heart suffers with the other organs; the maximum pressure is low in proportion to the mean and extremely variable. Under normal conditions the taking of food raises the mean pressure, but in neurasthenia so marked is the arteriolar contraction of the abdominal vessels, that an intense flushing of the face takes place, with a feeling of congestion of the brain and a beating of the cephalic arteries. At other times, owing to the relaxation of the abdominal vessels, there is an accumulation of blood in the abdomen causing a general sensation of cold; the hands and feet being, however, generally cold. To a great extent the vertigos are due to the same cause. On taking the erect position from the recumbent, there is under normal conditions, a rise of arterial mean pressure of about 10 mm. Hg. and a slight increase of the pulse rate; in the neurasthenic on the contrary, there is a fall of mean blood pressure on taking the erect position, of from 20 to 30 mm. Hg. and a very marked compensatory increase of the heart rate, which is insufficient to overcome the want or arteriolar contraction, and an anemia of the brain is the consequence, producing a vertigo for a few minutes till the arteriolar contraction takes place, when the vertigo passes off; in other words, the compensatory vasoconstrictor mechanism necessary for the erect position is deficient, reacting slowly to the stimulation of standing up.

The physiology of the blood pressure has been but recently investigated, since Leonard Hill and Bernard introduced their sphygmometer, it being the only one which will record both the maximum and mean pressures; the Riva-Rocci instrument usually used in this country is of little use clinically, as it only records the maximum pressure, and owing to its depending upon the sense of touch of the operator, the results are usually too low. Oliver and Hill have shown that any mental work or emotion raises the mean blood pressure, and it follows that continuous mental strain must produce a strain upon the vasomotor nerves, which results in their enfeeblement; and further, Sir William Broadbent has shown that continued mental strain produces a dilatation of the heart, the result of the continuous increased back pressure upon the ventricle. The effect of mental strain in the causation of neurasthenia will be referred to later, but enough has been said to show that primarily the neurasthenic condition is the result of a decreased sensibility or accommodative power of the vasomotor system.

Angina of a special type is common in neurasthenia; there is little precordial anxiety, nor are there painful radiations to the left arm; the thorax seems as though it were held in a vise; the pulse instead of being, as in true angina, small, thready and intermittent, is full and regular; the heart-beats are strong, even violent; the sounds distinct. Sometimes there is hyperasthesia in the precordial region resembling somewhat the condition found in hysteria, though the attacks of this angina are severe there is no danger of collapse. There is also a shortness of breath, oxygen hunger, the patient sighing frequently.

The functions of the genital organs are depressed, loss of power and desire are frequent causes of complaint. Coitus may be possible, but is followed by a feeling of intense lassitude with increase of pain in the lumbar sacral region. More rarely the patient is troubled with nocturnal erections which coitus does not relieve, sometimes accompanied by emissions, increasing the weakness and mental depression. At other times coitus is incomplete, ejaculation following almost immediately an erection. These symptoms suggest disease of the cord. In other cases, each defecation if followed by an emission of a thin fluid containing spermatozoa; in this condition

the prostate and vesicles should be examined for abscess and the discharge stained for gonococci. The writer treated a case which appeared to be a typical case of neurasthenia without headache, which recovered completely on the treatment of the prostate for a gonorrheal abscess; the spermatorrhea is due to atony of the seminal vesicles and can be cured by cold douches in the rectum. Cases with the above symptoms have been classed as sexual neurasthenia, melancholia being a marked psychic symptom.

Another symptom, which, however, is rarely present, is a certain amount of tremor usually slight, vibratory, affecting at the same time both the upper and lower extremities; the tongue is very rarely affected, but there may be a tremor of the lips causing difficulties of speech which suggest paresis.

The mental condition presents a general depression of the faculties without perversion; usually the mental activity is increased, sometimes decreased; intellectual work becomes difficult and above all the inability of the patient to make a decision on any matter however trivial; the memory, though slow, is intact and the judgment normal. With an effort, the patient is usually able to recover his mental aptitude completely, differing in this from the true melancholic in whom there are mental perversions, and from the paretic who has more or less lost control of his ideas. The neurasthenic will describe his mental condition exactly and the psychic depression from which he suffers without any impossibilities, exaggerations or delusions, with the exception that he has an exaggerated view of the severity of his case, with the idea that he is going insane, and that he will never recover. Restlessness is often a marked feature, the patient being unable to remain in one position or to sit still for but a minute or two at a time. Irritability of temper in some cases is very marked, the patient breaking out into uncontrollable fits of temper on slight provocation, perhaps swearing and breaking the furniture, resembling acute mania. Timidity may be a very marked symptom.

Constitutional neurasthenia is another form of the disease, according to Charcot and other writers, but the symptoms are the same, the subjects being those who are either congenitally or from some acquired condition less able to bear the mental and nervous strain of the struggle for existence, and who, therefore, more easily succumb to the strain of life. I do not believe that the pressure of modern civilization is greater than in former years; if more work is accomplished, more responsibilities carried by the individual than formerly, it must be remembered that the advantages of modern methods and appliances render such efforts more easy; and besides if the working strain is greater, the opportunities for diversion and recreation are also greater than formerly. There is perhaps one condition in modern life which tends to produce nervous and physical breakdown, and that is, that to-day the large majority of business men take but little exercise. Our forefathers either had to walk or ride horseback or drive; in the latter case the time consumed on a journey was longer than in these days of express trains and was to a great extent a rest from business cares, combined with a change of scene and environment which could not but be beneficial to the overworked man. We however, see men to-day who have led active business lives for half a century or more, hale and hearty at eighty years of age, and again we see men whose responsibilities have been light and whose anxieties have been few, succumb to neurasthenia.

In the so-called constitutional neurasthenia the clinical history reveals but little toward the etiology of the case; as an example, a young man of thirty comes to the office with many of the symptoms detailed above; in his history is neither hereditary alcoholism nor syphilis—those ever-ready refuges for the perplexed diagnostician; he may never have had any severe illness, and possibly the ordinary diseases of childhood have been so mild as to have almost escaped his recollection; he is possessed of a private income which renders him free from the anxieties of working for a living, and is perhaps working in some office more to employ his time than for ordinary pecuniary gain.

There is one point, however, in many of these cases which shows the cause of the neurasthenic condition, viz., that puberty was delayed, that he ceased to grow at the age of about sixteen or seventeen; that he was backward mentally, not perhaps as calculated from the standard of the school, but rather in his psychic development, associating with boys younger than himself, finding amusement in boyish or childish games. At about eighteen or nineteen the average boy becomes a man; he puts away childish and boyish things; but in this case he has remained a boy till perhaps twenty or even longer. In women, in whom this form of neurasthenia is more common than in men, menstruation may not have commenced till eighteen or nineteen years of age, and always been more or less scanty and irregular. The genitalia of the male are often small and poorly developed, and there has never been much sexual desire. Such cases are not true neurasthenia; they may belong to the class of cases known to the French as "type Loraine," or they may be cases of infantilism where the thyroid has failed to develop fully or has atrophied early; or they may be cases of anangioplasia.* The mean blood pressure is high; the arteries feel hard and small, suggesting arteriosclerosis, the heart rapid and forcible. These cases do not belong to neurasthenia properly speaking; their etiology being very different and consequently their treatment also. The prognosis of perfect recovery is, however, not good; the symptoms may be ameliorated but the patient will probably spend the rest of his life under the care of a physician, dying at a comparatively early age from some inter-

* See "The Thyroid and Parathyroid Glands." Williams Wilkins & Co., Baltimore.

current disease, owing to the reduced resistive power of the system.

True neurasthenia is found among those men who lead strenuous lives, having great responsibilities and anxieties without taking a sufficient amount of recreation and physical exercise, combined with irregular and bolted meals. The importance of the digestive apparatus cannot be overestimated, its complications render it liable to get out of order; consider that the saliva, the pepsin, hydrochloric acid, enterokinase, pancreatic juice with its three ferments, the bile, the succus entericus and other ferments, which are as yet but imperfectly understood, have all to secrete sufficiently and in proportion in order to convert the food into the condition in which it is most easily absorbed and assimilated, and that if any links in this chain are omitted, the nutrition will suffer, not only from decreased assimilation, but also from the absorption of imperfectly digested food products which must act as poisons to the system.

The etiology of neurasthenia can be classed under four heads: (1) Mental strain; (2) disturbances of digestion, malnutrition and auto-intoxication; (3) toxemia from infectious diseases; (4) traumatism and shock.

It is a matter of general knowledge that emotions affect the digestion, anxiety and grief cause loss of appetite, coated tongue, constipation, etc., producing malnutrition and auto-intoxication, which in their turn act upon the already overstrained nervous system. In many cases of neurasthenia the digestive disturbances antedate the nervous symptoms; in others the nervous symptoms are the first to appear, the one reacting upon the other in a vicious cycle.

Toxemia from grip, scarlet fever, diphtheria and other diseases sometimes leaves the patient a nervous wreck. Traumatism and shock are a cause of the same condition as seen in those nervous troubles dating from railway accidents, etc.

It is apparently the vasomotor nervous system which is principally affected. All emotions act upon this system of nerves. Leonard Hill has shown how mental work raises the mean blood pressure 30 to 40 mm. Hg.; if the nervous mechanism is continually under a severe strain for months or years, it is evident that it will become fatigued and refuse to react normally to stimuli. I have observed that there is a reversed postural blood pressure in neurasthenics, under normal conditions on taking the erect position from the recumbent, the mean blood pressure rises from 10 to 30 mm. Hg, while in neurasthenics, under the same conditions, there is a marked fall, sometimes as much as 40 mm. Hg, with a great increase in the pulse rate, showing that the vasomotor system fails to respond to normal stimuli. In neurasthenia the blood pressure is variable and erratic, falling suddenly when it would normally rise producing vertigo; at other times rising excessively, causing flushing of the head and neck, while the hands and feet may be cold. The vasomotor system regulates the blood supply to the various organs and it seems probable that many of the nervous symptoms classified as separate diseases are due to a defect of the vasomotor nerves controlling the blood supply to some particular portion of the nervous system, the variations in the symptoms depending upon the part affected.

There is yet another etiological factor which is of great importance from a therapeutic standpoint, viz., a gouty constitution. In these cases the urine is intensely acid and the carbon nitrogen factor very low. The most marked symptom is irritability of temper, sometimes so great as to resemble an attack of acute mania.

There is no specific treatment in neurasthenia. Removal of the cause of worry, if possible, increased physical exercise, anything to interest the patient in some form of recreation, attention to the digestion, to the removal of the toxins from the system and to the building up of the whole system in every possible way. Drugs, such as the bromides, the coal-tar derivatives, etc., should be used as little as possible on account of their effect upon the assimilation, the circulation and the blood; the coal-tar preparations are particularly contraindicated on account of their destructive action on the red corpuscles. Bromides depress the heart and the vasomotor system and should be used with caution. The difficulties of the physician are much increased by the intractability of the patient; he will refuse to leave his business or perhaps he is unable to do so; he will not take his treatment regularly, will absent himself from the office for a week or two at a time, returning perhaps to scold the physician because he is no better, or perhaps he will seek a new doctor every month; it is no uncommon occurrence to have a patient produce a pocketful of prescriptions from different physicians, upon all of which he will dilate with a curious mixture of astuteness and perverted knowledge, which would be amusing if it were not tedious. The first duty of the physician is to gain the patient's confidence, and by firmness and sympathy hold him to his treatment, a task often of great difficulty, requiring great tact and patience.

THE THEATRICAL PROFESSION AS A FACTOR IN THE DISSEMINATION OF DISEASE.

BY S. H. BROWN, M.D.,
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Much has been written during recent years concerning the various factors that exert an influence in the dissemination of disease but, as yet, nothing has been produced to show any relationship between the theatrical profession and certain forms of disease. In order to command attention for this subject one has but to ask consideration for two facts; first, the already undisputed fact of the causation of diseases by bacteria, and second, the migratory tendencies of Thespians as a class.

While the relation between bacteriology and disease is always of great interest its discussion may be conveniently omitted from this disserta-

tion on account of its extensive scope. It must, however, be remembered that while special bacteria may be found associated with a number of diseases, there is a marked inability to detect specific microorganisms in those that are most contagious, such as syphilis and smallpox, and it is the purpose of this article to bring out the clinical features of some of these affections as modified by the mode of life peculiar to the actor.

The habits and mode of life of those who follow the stage for a livelihood are subject to very great variations. For convenience, actors may be considered as successful and non-successful. Success in this profession may be considered from the standpoint of money or of art. Those whose success is monetary in character are least likely to diffuse morbid conditions throughout a community. Such individuals are able to procure all the comforts and accommodation possible, both in the large and small cities and towns; and in the event of illness, temporary or permanent, are also able to procure the best medical attention. But even with these advantages, the recognition and prompt treatment of certain affections are unavoidably postponed on account of the exigencies of the professional life.

Considering those successful as regards the theatrical art, the question becomes more intricate. The monetary success of these individuals is, with but few exceptions, periodic in character, all illness is cheerfully disregarded unless it had a direct influence upon the display of their talents and during the period of "hard times" everything is disregarded out of necessity.

These two classes should be instructed as regards their bodily conditions for their own sakes, while the other class yet to be considered should be the subject of constant attention on account of the influence they exert upon society in general.

The unsuccessful class is made up of failures as regards art and finance and constitute by far the large part of the theatrical profession. From the very beginning of their career, the members of this class often possess tendencies detrimental to themselves, their profession, and to society. Cleanliness as practised by other members of society is a dark mystery to many of these individuals. This mystery is allowed to deepen by lack of accommodations in the music halls, cheap theatres, boarding houses, etc., in which most of their lives are spent. Coupled with this are alcoholism and immorality, both of which tend to exaggerate the original unhygienic tendencies. While the effects of these influences are most marked in this class, they are by no means limited to it but permeate the upper strata, becoming greatly modified by the three great factors, intelligence, education and financial success.

The various sources from which the unsuccessful class is recruited differ but little in their several aspects from the positions they occupy in the theatrical profession so that in these cases, heredity and environment exert but a negative influence in the betterment of these individuals as a class. To dilate further upon this subject would be superfluous as their characteristics and tendencies are well-known to all.

The disease to which the various members of this profession are subject next claim our attention and at a glance it may be seen that these are the same in both cases, modified of course by the varying financial conditions from time to time. These affections may be conveniently considered as those that are regarded and those that are disregarded. The abnormal conditions that are regarded with alarm are usually those referable to the nose and the throat and the reason for this is obvious, considering the effect such conditions have upon the voice and therefore upon the patient's vocation. These conditions always receive prompt and efficient treatment from the best specialists in the various towns and cities, but after that, the physical condition is entirely disregarded.

The threatical profession is extremely large and its members occupy a considerable portion of their time in the performance of near work by their eyes and subsequent exposure to intense light, but how many of its members take the time to have their eyes properly examined and placed at rest and yet eye-strain is a well-recognized condition. Apart from this, the effect of cosmetics is seldom seriously considered, as the members of this profession may be frequently seen upon the street and in public places, with the same paint, powder, etc., as upon the stage. The pores of the skin, the innumerable openings of the ducts of the glands of the integument are forever closed up by these foreign substances and excretion is retarded to a corresponding degree.

The entire skin surface is seldom considered to the height of its importance. Full bathing is practised frequently by the upper class, but among the lower class, in addition to the not uncommon natural aversion to soap and water, there is frequently an inability to procure this priceless luxury. But this does not lessen the importance of its necessity. We are all familiar with the manner in which most actors and actresses die. The newspapers always attribute it to immorality and alcoholism, but considering other branches of society we shall find an equal degree of immorality and alcoholism but a longer average term of life due undoubtedly to the observance of the every-day rules of personal hygiene known to all and considered by all except the theatrical profession. Looking over the lives of those members who have survived to rather old age, this is proven with great force.

The skin, as is well known, takes part to a large extent in the excretion of the waste products of the body and the blocking up of the avenues of escape in this structure by cosmetics, sweat, sunburn, etc., can have but one effect, namely to increase the work of the other organs of excretion.

The infectious fevers, such as smallpox and diphtheria, occurring in these individuals probably receives greater attention than from other classes

of society. Vaccination is well understood and accepted more extensively than by the outside public. With diphtheria, the recognition and treatment are prompt for the reasons already stated. Scarlet fever is comparatively infrequent among the members of this profession but the possibility of large epidemics should always be taken into consideration. Typhoid fever, on the hand, is rather common. Hard work, improper hygiene, dissipation, poverty, etc., all aid in its production and unless the patients can be removed to a hospital or other quarter appropriate for their care, the diffusion of the disease is certain. The mild types are particularly dangerous in this respect on account of the ability of the patients to follow their respective troupes from place to place.

More frequent than the infectious fevers in this class are the parasitic disease of the skin. Most of these are secondary to lack of bathing, wearing of unclean and contaminated clothing, and exposure to variations in the dermal temperature. Perhaps the most common affection of the skin encountered in travelers and others whose place of residence is continually changing is scabies or itch. This is essentially an animal parasite disease and is acquired by contact. While not attended by danger to life the affection is extremely aggravating and shows no tendency to undergo spontaneous involution. Medical works describe it as a disease induced by the presence of a minute parasite, *Sarcoptes scabiei*, beneath the skin. The parasite burrows its way through the skin leaving its ova in its trail. This produces intense itching which is worse at night and causes the patient to scratch considerably, thereby producing a multiform eruption upon the skin made up largely of scratchmarks, pustules, etc. It selects certain regions of the body by preference, namely those places where the skin is warm, moist and thin, such as the webs of the fingers, the wrist, the flexor surface of the elbows, the armpits, the female breasts, buttocks, shaft of penis, inner side of thighs, legs and ankles, and between the toes. The itch-mite and its burrows may be detected in any of these situations and is considered diagnostic. In a typical case it is not difficult to detect all these characteristics but typical cases seem to restrict themselves to the dirtiest of people. However, there is very little to prevent these individuals from infecting others, since the affection respects no class and usually those with typical cases are outcasts and receive no attention from themselves or anyone else.

Mounting the scale, the condition undergoes many variations depending on the tendencies of those affected. For instance, in those who subject their hands, arms, and forearms to repeated washings, the disease may be largely eradicated from these surfaces or at least the itch-mite and its burrows may be entirely removed from these situations yet the patient suffers from intolerable nocturnal itchings and continues to infect those about him. This leads to failure of recognition of the condition by the average practitioner of medicine on account of the absence of the burrow which he has been taught to regard as the sole distinguishing feature of the disease. As a further result these atypical cases are ascribed to the uric acid diathesis, etc., and treated accordingly, but without success. It should never be forgotten that the face is free in scabies except occasionally in nursing infants.

The possibility of dissemination of this disease is enormous when the constant changing of costumes, and the huddling together in railway trains, cheap hotels, boarding houses, etc., are considered. Not only do members of the same troupe become infected, but others following and occupying the same apartments (often without a change of bed-linen) become the subjects of this affection, differing according to the habits of the individual, but possessing in all the one prominent feature of intense itching at night. Obviously the underclothing and bed-clothing should be boiled in all these cases in addition to the medical treatment. The affection is also acquired during sexual intercourse, but this is ignored almost universally, and in mild localized forms it may be confused with more serious affections.

Another condition to which the theatrical profession is exposed is that of pediculosis of lousiness. When we consider the number of young women with long hair that go to make up the larger part of the numerous traveling troupes and the facilities they have for keeping the head in a perfect condition, the possibilities are enormous. *Pediculosis capitis* is therefore extremely frequent and is made more so by the various headwear employed and the means provided for its transportation.

Luckily, a number of these women bleach their hair and, unknowingly, antisepticize their heads. The prominent constituent of most hair-bleaches is peroxide of hydrogen and this exercises a solvent effect upon the gelatinous capsules of the ova or nits attached to the individual hairs. Apart from the intolerable itching and discomfort attendant upon pediculosis in all forms, there is exerted a deleterious influence upon the general health and most such individuals become pale and anemic; the hair becomes lusterless; and the adjacent glands enlarge and sometimes suppurate.

Pediculosis corporis demands attention, since the presence of an individual so affected may give rise to endless trouble and annoyance through the infection of the clothes of other members of the same troupe as the parasite lays its ova in the seams of the clothing and hatches them out under the influence of heat. This explains the occurrence of itching in this affection only when the clothes are worn and directly after removing them.

Itching is alike in all diseases of the skin and the scratching induced by one is no different from that produced by another so that these individuals present themselves with lesions upon the skin that differ, apparently at least, in no way from those of scabies or itch. Physicians often refuse to entertain the thought of pediculosis in cleanly individuals and make a hasty diagnosis of eczema

but herein lies the danger as eczema is non-contagious. To the experienced observer, however, the difference is apparent; the itching and scratching is almost invariably situated on the outer side of the arms, thighs, and legs, the backs of the shoulders, and areas corresponding to the seams of the clothing. The hands, feet and face are free and there are no burrows as in scabies or primary lesions as in eczema.

Pediculosis pubis, commonly known as "crabs" occurs with great frequency in the pubic region and is usually associated with unclean sexual intercourse, but it is not always acquired in this manner. The clothing may be the medium of contagion in this as in other diseases. As is also well known these parasites may be found in the armpits, eyebrows and eyelashes, giving rise to inflammations of the skin, the true origin of which may be overlooked by the casual observer. The common practice of rubbing in blue ointment in this affection is to be deprecated as in careless hands its use may lead to dermatitis or ptyalism and equally beneficial results may be obtained by less harsh modes of treatment.

The vegetable parasitic diseases of the skin may be dismissed with passing mention, for while they are contagious, they produce little or no disturbance. Their greatest importance lies in ease with which they may be confounded with more serious affections. For instance, the macular eruption of syphilis may resemble *Tinea versicolor* or choasma and again the circinate lesions of late secondary syphilis may be considered as ringworm. The microscope serves to render the diagnosis certain in these cases.

Passing from the parasitic affection of the skin, our attention is next directed toward venereal diseases, the contagiousness and manner of acquisition of which are common knowledge. These affections, however, are rendered more virulent and their contagiousness increased by the mode of life of the professional actor, particularly those of the lower class and appear in aberrant forms that elude detection by the patient and also occasionally by the physician.

Syphilis is a frequent affection in this class of individuals and while it is usually acquired during sexual intercourse, it may arise from contact in other ways. The chancre or initial lesion may occur in situations in which it is difficult to detect although it is usually situated on the external genitals. The appearance of the secondary eruption, especially the roseola, may remain undiscovered and the disease pass rapidly into the tertiary stage. The mucous patch often remains alone for a considerable period and when we consider its location in the mucous membrane of the mouth, rectum, and genitals, the ease with which the disease is disseminated becomes at once apparent. Then, again, the patient disfigures these lesions by the application of caustics and other irritants by the advice of friends or charlatans so that even a skilled physician may be deceived. The moist papules that occur between the folds of the buttocks in syphilis usually remain untouched by reason of their not being exposed to view and are especially characteristic.

The tertiary lesions of syphilis, being looked upon as non-contagious by the medical profession, may be disregarded as far as dissemination of disease is concerned but should receive proper attention for the patient's sake. These lesions are usually seen in the more successful members of the theatrical profession because these individuals manage to survive the many vicissitudes of their calling. The gumma, when external, is easily recognized but the tubercular and papulotubercular lesions are often confused with other affections of the skin and grave internal manifestations of the disease are allowed to occur. The tendency of the papulotubercular lesions to form incomplete rings should never be forgotten as it will often serve to render the diagnosis clear.

The treatment in these cases is often attended by great difficulty. As in all other syphilitic persons there is a tendency to discontinue treatment as soon as the lesions begin to disappear and herein lies the great danger. Medicine should always be taken for a period of two or three years, under the supervision of a physician. The ingestion of drugs during that period does not constitute the entire treatment; the patient should be seen by the physician from time to time and the treatment varied. In the event of the patient being unable to pay for treatment, he should be directed to the proper hospital or dispensary, but how many are so instructed? Most frequently they consult quacks, or drug store "doctors" and after four of five months' treatment depart, apparently cured, to return with some late lesion or die at a comparatively early age from internal lesions. In the meantime, how many individuals within and without the theatrical profession have acquired the disease?

Chancroids are probably less frequent than the previously described affection and on account of their easy recognition are promptly treated. By the laity nearly all lesions of the genitalia are considered as chancres and are almost invariably cauterized. In the event of the lesions being chancroids, the result is beneficial but if the lesion is a chancre, the treatment has been useless and harmful in that it served to mask the real condition.

Gonorrhea is probably the most frequent disease and its causes are obvious. The underpaid condition and immorality of the lower classes tend to propagate this affection with great vigor. Coupled with this is the lack of opportunities and, likewise, desire for personal cleanliness. Gonorrhea in women seems to last indefinitely, even when all the conditions are favorable for its eradication on account of the numerous folds and crypts of the genitalia in which the infection lodges. How much more so must this be in those who are deprived of the privilege of taking proper care of themselves either by reason of straitened financial circumstances or lack of proper accommodations.

The secretions from such individuals carry in-

fection and must certainly contaminate the clothing. While this may probably be the least potential factor in the dissemination of this disease, it should always be remembered. Gonorrheal ophthalmia, with its frightful sequences, should likewise never be forgotten when considering the possibilities attending the diffusion of this affection. While the sequences of gonorrhea are not directly pertinent to this subject it is difficult to dismiss it without alluding to the fact that sterility in both sexes is traceable in a large percentage of cases to it. Blindness in children in many cases and a large number of abdominal operations are also its results.

In conclusion it may be well to summarize the facts contained within this paper as follows:

1. That the theatrical profession is a factor of great importance in the dissemination of scabies, pediculosis, syphilis and gonorrhea, by reason of its peculiar sociological position.

2. That this influence is greater in traveling troupes than in companies located permanently in the large cities on account of the lack of accommodations and unhygienic conditions under which they live.

3. Living apart from the rest of the world as they do to a great extent they are deprived of the medical education which is becoming so popular with the rest of the laity.

4. Lack of time prevents the members of this profession from consulting able medical men in the large cities except when physically incapacitated and in consequence they fall into the hands of unscrupulous and ignorant physicians or charlatans.

The relief for this series of evils is not easily produced. Probably the best means of preventing the spread of these affections would be by educating the members of this profession in the various dangers attending these conditions. While the first two parasitic affections are not dangerous the are extremely annoying and inconvenient and may be readily prevented and cured. Facilities for frequent bathing should be provided in the boarding-houses and the accommodations at the theaters should be such that the lesser lights could properly care for themselves. The manner in which the costumes are handled cannot be too harshly condemned. With the resurrection of old costumes for a revival of any kind, it is scarcely less than miraculous that all the diseases known to man are not equally distributed throughout the company. The sterilization of these costumes at least once would do no material damage and would greatly aid in lessening the danger of transmission of disease. Because an individual is upon the stage it does not necessarily follow that he or she should be entitled to the diseases already mentioned, and, further than this, the outside public should be protected, as it is said many succumb to the wiles of the "merry merry."

A Manual of General Pathology. By Dr. Sidney Martin. 8vo, 502 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

INSTRUMENT HANGER FOR GLASS-SHELVED CASES.*

BY FREDERIC GRIFFITH, M.D.,
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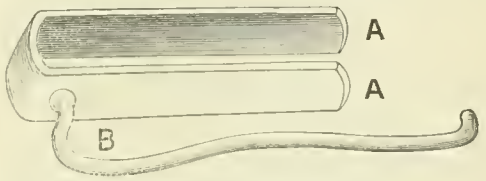
Last summer, during a visit to the private operating room of Mr. Hurry Fenwick, of London, I noticed in his instrument case a device which appeared to me would be a valuable addition to glass-shelved instrument cases. Forgetfulness upon my part prevented me from learning whether that gentleman was himself the inventor or not. The invention consists of a hook for suspending hemostats, scissors and many other like instruments which, when spread out over the shelves, occupy needless space. The copy of the model which I have made is of brass.



The straps (AA) are made from a strip of moderately springy metal seven-sixteenths of an inch wide and one-sixteenth in thickness. The length of the straps are 2¾ inches. The thickness of my shelves vary from three-eighths of an inch to seven-sixteenths of an inch and the spread of the straps has therefore been made with these measurements in view, so that moderately firm pressure is made above and below the shelf when in position. The hook (B) is made from wire three-sixteenths of an inch in diameter and 4½ inches long, being soldered to the strap as in illustration, after having been bent into shape. The implement is placed in position either from the front or back of the shelf.

49 East Sixty-fourth Street.

FORENSIC EYE ASPECTS OF TABES.

BY JAS. G. KIERNAN, M.D.,
OF CHICAGO.

While neurologists and clinicians lay stress on the Argyll-Robertson pupil in the differential diagnosis of locomotor ataxia, yet it, like most pathognomonic symptoms, exceptionally occurs in many conditions. Differential diagnosis here as elsewhere is but too often a pedagogic performance unsuited for actual practice in which atypic not typic cases furnish the main necessity for diagnosis. The Argyll-Robertson type of reflex iridoplegia is associated with preserved accommodative mobility where the pupil is as immovable as a frozen opening, no matter how brightly illuminated or how deeply shaded, but contracts when the finger is approached to the nose. It has been temporarily noted after railroad accidents and other shocks, in cases in which no subsequent evidence of grave neuroses had occurred. In such cases it disappears. Excep-

*Presented at the Academy, Surgical Section, December 4, 1903.

tionally it has been found in alcoholism. It occurs early in locomotor ataxia, in paretic dementia, in constitutional syphilis. However, constitutional syphilis occurs quite frequently in which it is absent.

As W. L. Baum* has said, the frequency of the Argyll-Robertson pupil in constitutional syphilis is overrated. That it is frequent in parasyphiloses like paretic dementia and locomotor ataxia is undeniable. It is not to be received as a pathognomonic mark of these conditions, since it has been found in conditions like alcoholism and therefore may be a temporary expression of toxic states occurring during constitutional syphilis.

Some years ago I was called to testify in a suit against the Chicago Union Traction Company in which the driver of a mail wagon who had served as a soldier during the Civil War and had died of tuberculosis ere the case in litigation came to issue. His mail wagon had been struck by a car of the Chicago Union Traction Company and he was thrown from the seat. Fourteen days after this accident a diagnosis was made of locomotor ataxia, chargeable to traumatism, from an alleged condition of the pupils of which no clear description was given in the testimony. The diagnostician (a member of the family) who had observed the pupils under very disadvantageous conditions seemed to have some idea, as far as could be gathered from his testimony, that there was reflex iridoplegia of the Argyll-Robertson pupil type.

In response to a hypothetical case based on these facts I testified that in my judgment locomotor ataxia due to the traumatism did not exist and that diagnosis from the eye symptoms alone was not justifiable. Had locomotor ataxia existed there must have been symptoms of its presence before the alleged accident. It might even, from the destruction of coordination, have contributed to the accident since, unless in a remission, a tabetic has not the necessary coordinating power for a driver in city streets.

This issue was not raised by the company, albeit the declaration specified locomotor ataxia. In their defense to personal injury suits, corporations rarely plead a prior state of ill health on the part of the plaintiff. They accept the claim agent theory of pure fraud, thus raising an issue which any attorney with legal acumen is ready to meet despite jury and judge fixing, hospital staff packing and other corporation guards against the wicked wiles of alleged "ambulance chasers."

As the preponderance of proof element is always strongly in favor of the defendant corporation, as this preponderance extends to the issue of contributory negligence, and as any morbid condition where occupational ability is impaired makes for contributory negligence, the lobbyist is shown in the fact that he forces the defense of pure fraud in cases where occupational ability is damaged by ill health existing prior to the accident. The same evil influence appears in the denial of symptoms of permanent injury where such symptoms really exist but are chargeable to pre-accident morbid states.

* Illinois Medical Journal, 1901.

MEDICAL PROGRESS.

MEDICINE.

Transmission of Tuberculosis from Man to Cattle.—The present investigation is complementary to one published by the same authors several years ago on the relation of bovine tuberculosis to man. The work considers the following questions: (1) Whether the tubercle bacilli found in primary tuberculosis of the intestinal canal in man are ordinarily virulent for cattle, and (2) what is the frequency of primary tuberculous infection of the intestinal canal in man. Special attention has also been paid to the tracing of the infection through the agency of milk. The authors, J. Fibiger and C. O. Jensen (Berl. klin. Woch., Feb. 15, 1904) inoculated a series of calves with pure cultures of tubercle bacilli taken from patients afflicted with primary intestinal tuberculosis. Out of 10 cases, one-half produced only a weak reaction or were practically avirulent, the remainder resulted in a marked virulent reaction. In only one-half the cases therefore was a progressive tuberculous infection noted in the inoculated calves. It is also noteworthy that among five cases of apparently primary intestinal tuberculosis in children, four produced bacilli which were particularly virulent for cattle. Cases such as these, where no other modes of infection seem possible, where primary intestinal tuberculosis and bacilli virulent for cattle are present, and where the children have been fed on raw milk taken from uncontrolled herds, show conclusively the necessity for insisting on proper precautionary hygienic measures. Koch has said that extreme precautions against intestinal infection are unnecessary, as such cases are comparatively rare in man. The authors have made careful autopsy records in a series of 213 cases examined in a period of two years, and among 116, in which tuberculosis was the principal disease, 13 were afflicted with primary tuberculosis of the intestinal canal. This is approximately about 6 per cent. of all necropsies and about 11 per cent. of all those suffering from tuberculosis.

Bronchoscopy for Foreign Bodies in the Bronchi.—The diagnosis of these has largely rested on the history of swallowing some object and the subsequent cough, pain, and, rarely, localized physical signs, especially the signs of a simple small area of consolidation. Then came the radiograph, exceedingly useful where the foreign body is of metal or some other substance opaque to the rays, but of no value for a nut or a plumstone or anything that will not throw a sharp shadow. But now, according to Lermoyez and Guisez (La Presse Médicale, Dec. 23, 1903), one has in bronchoscopy an efficient method of absolutely detecting anything in any of the larger bronchi, for not only can the tube be passed to the tracheal bifurcation, but owing to the elasticity of the lungs may command all the larger bronchial ramifications. For treatment the medical man would resort to emetics, turning the patient head down and slapping his back, etc., and if these failed adopted an expectant attitude hoping that the object would be either coughed up or extruded through a fistula. Bourdillat found the death rate in spontaneous evacuation through a fistula to be 56 per cent. Surgeons by low tracheotomy reduced the mortality to 30 per cent., sometimes doing much harm by blindly

poking instruments into the bronchi. Transmediastinal bronchotomy has been tried with a death rate of 100 per cent. But the authors believe that bronchoscopy is harmless and easy to perform, and has the advantage that on making the diagnosis the foreign body can be at once easily extracted. They report the successful extraction of a nail, which could be located by X-rays, but which there seemed no possible way to get at.

Amœbæ Dysenteriæ.—Dysentery, according to the latest researches, would seem to be either *bacillary* due to bacteria, or *amebic* due to *Amœbæ dysenteriæ,* or *mixed,* that is, ameho-bacillary. The amebic are more common in hot than in temperate climates. The symptomatology of the two varieties is very similar, the differential diagnosis being made certain only by examination or cultures of the stools or serum reaction. But the amebic type tends to be chronic, is characterized by alternating exacerbations and periods of apparent health, and is sometimes complicated with abscess of the liver. The bacillary type, on the contrary, is sudden in its onset, runs an acute course, and recovery or death results in fifteen or twenty days. The amebic stools are generally alkaline, the bacillary neutral or acid. Anatomically the amebic lesions are confined to the large intestine, but the ulcerations are deep with overhanging edges. The bacillary lesions may appear not only throughout the whole large intestine, but also in the ileum, and the necrosis is superficial, never reaching the muscular layer. H. Vincent (La Presse Médicale, Dec. 23, 1903) reports a case of amebic dysentery, which, after a serious course and various kinds of treatment, including antidysenteric serum, finally yielded to ipecac, calomel and opium. In studying the case the serum reaction was negative, and the stools were loaded with round, ovoid or pear-shaped amebæ of about four or five times the diameter of a red blood corpuscle. These amebæ held as inclusions red blood cells, cellular fragments and bacteria, thus distinguishing them from the non-pathogenic *Amœbæ intestinalis vulgaris,* and the pathogenic *Amœbæ coli mitis,* neither of which engulf red cells. The ameboid movements were free, the hyaline portion of the protoplasm alone forming pseudopods. The nucleus remained always of the same shape. At the temperature of the laboratory the movements were very marked for ten to thirty minutes, or in some cases for an hour. Then they gradually became slower and finally the parasite took a spherical shape with a prominent nucleus. At no time was a contractile vacuole seen. While living, the amebæ cling to the slide, but as soon as dead are washed off by the currents in the water. Shortly after the movements have ceased the differentiation between the ento- and the ectoplasm disappears and the parasites may be taken for epithelial cells. Contrary to the opinion of Ucke, the author has found in a number of cases, that the serous liquid on the surface of the stools contains amebæ in almost as great numbers as the mucus or blood, and that they are more motile. Urine inhibits the movements. To observe these the cover-glass must be lightly applied, and motion may be stimulated by lightly tapping the cover-glass with a fine wire or by brusquely alternating light and shadow. Following a dose of calomel, the stool contained many less hematophagic amebæ. They were mostly smaller (20 μ), and motionless, and on the third or fourth day a great many of them had no nucleus, their protoplasm was either hyaline or uniformly turbid, and they were spherical with intensified outline. A few of them had a double wall, the encysted form. Fixation by any of the common fixing reagents was not followed by successful staining (the amebæ stain better when hardened in the tissues), so a drop of aqueous methylene blue was placed on the living organisms, while all the other elements of the stool are stained blue, the amebæ remain uncolored and prominent. After about ten minutes they take on a spherical form, but soon throw out pseudopodia which keep up a constant motion. After six or eight minutes the pseudopodia cease and begin to imbibe the color, which attacks first the ingested cells, débris and bacteria. After ten minutes more the nucleus becomes colored and death ensues, and then the whole organism takes the stain. By this same method, the effect of other agents was tried. Silver nitrate, osmic acid and mercuric bichloride were followed by rapid death. Potassium permanganate is less active. Tartaric, citric and oxalic acids immobilize and soon kill; tannic acid is very active. Picric acid is mild, and boric acid and weak alkaline solutions have no effect. But of all the substance tried, the most certain and most energetic was the neutral hydrochlorate of quinine. The amœbæ retracted instantly, seemed to disappear, then became clumped and unrecognizable. This salt would seem therefore to be very useful in the treatment of dysentery, while methylene blue, which is so much used, is one of the least efficient remedies.

SURGERY.

Treatment of Cervical Adenitis.—One of the most important points in the treatment of this condition is considered by F. S. Bulkeley (Am. Med., Feb. 27, 1904) to the care in avoiding or minimizing the amount of scar. The method which is usually mentioned plans the incision to take advantage of the natural skin creases. The writer thinks that in many cases it is possible to go still further. He divides the cases into three classes: (1) Cases in which the severity of the symptoms or the location of the infection is a menace to life and active interference is called for; (2) tuberculous glands; (3) where immediate radical interference is not demanded. The first class of cases occur relatively seldom and the question of a secondary scar becomes of secondary importance. In the case of tuberculous glands early treatment is of the greatest importance, and he recommends radical excision where improvement does not soon follow medical treatment. He emphasizes particularly the treatment of the third class of cases. The condition of the channels which they drain should be carefully looked after. Where suppuration has taken place, he suggests aspiration of the pus with the subsequent injection of antiseptics, or the use of a seton. For injection a solution of dioxide of hydrogen (50 per cent.) with or without the addition of iodine was followed by the best results. Where this is too painful or cannot be done, a cotton or silk seton may be used and the thread moved several times daily. Drainage may be hastened by the application of a hot poultice. Neither of these methods should be resorted to in the case of deep cervical glands.

Deceptive Abdominal Signs.—Our knowledge of the indications for operation, while vastly improved, are as yet of infantile development. A. H. Tubby (Brit. Med. Jour., Feb. 13, 1904) states that unfortunately it must still be admitted that the only method of positively settling the diagnosis is to make an exploratory incision; but this is only another formula for acknowledging defeat. It at once takes the case out of the realm of science and places its treatment simply among the lower arts. Some of the conditions which render a diagnosis of the utmost difficulty are as follows: In many abdominal lesions the symptoms for a time are absolutely latent, only becoming recognizable when they are of such severity as to make intervention hopeless. On the other hand, certain cases which commence acutely, subside and apparently are

progressing favorably when of a sudden they break out with increased virulence and end fatally, the latent period having utterly deceived the clinician. Again, when the general symptoms of suppuration are present, it is sometimes impossible to say with which organ it is connected, and no data are present upon which to commence exploratory investigation. There are certain symptoms which cannot be too frequently brought before the observation of all practising physicians. In the order of their importance, they are as follows: (1) The ratio of the pulse to the temperature. If these are proportionate, the outlook is favorable, but a rise of pulse with a fall of temperature is a condition of the utmost gravity. (2) Leucocytosis. Although this sign is of the very greatest importance, it is not absolutely to be relied upon by any means, for the greatest and most acute forms of poisoning are not attended with any elevation. The ratio of polymorphonuclear cells is important. If these are increased from the normal rate of 65 per cent. to from 70 to 75 per cent., pus formation is certainly present. (3) Rigidity. This, even in the absence of other abdominal signs, is of the utmost value. (4) Vomiting. This is a variable sign, although most acute abdominal conditions commence with it. It is often absent in the latent period. If it recurs after the stomach has been emptied, it becomes of important significance. (5) Distention. This is not a characteristic sign of the early stages and may be absent even in intestinal perforation. In later stages, its vital significance is well known. If it persists longer than twenty-four hours, it is of grave moment. (6) Constipation and diarrhea. The former may be due to obstruction or to sedatives, but the latter is often indicative of septic absorption from a closed abscess. (7) Local tenderness. (8) Hematemesis and melena. (9) Increasing abdominal dulness. This, after a serious injury, is indicative of hemorrhagic effusion.

Surgical Treatment of Gall-stones.—The almost universal presence of inflammation in the gall-passages as an etiological factor in gall-stone cases is now generally admitted. The infection may reach the gall-bladder by ascending the ducts from the duodenum, by penetrating the walls of the bladder—by way of the blood vessels. Stones are very rarely formed in the ducts, those which are found there having originated in the bladder. B. F. Curtis (N. Y. Med. Jour., Jan. 2, 1904) believes that expectant treatment should not be persisted in to the extent which has been thought allowable in the past on account of the danger of serious inflammatory processes. A grave cholecystitis with perforation is only too common and on account of the absence of jaundice the connection with the biliary system is not recognized. Appendicitis is frequently the diagnosis, especially when the gall-bladder is low down. The colicky pain, localized tenderness and rigidity over the gall-bladder are the principal signs and operation should be done if the symptoms are violent or if they do not soon abate. Obstruction of the common duct is often allowed to persist for weeks or months, at the expense of the patient's welfare, for cholemia is dangerous and so is the exhaustion of the patient from suffering, fever, and limited diet. Hepatic cirrhosis and interstitial nephritis are frequent accompaniments of persistent cholemia. Calculi in the bladder or cystic duct may also demand surgical interference. The usual symptoms are pain in the epigastrium, sometimes radiating, more or less nausea, vomiting, febrile disturbance, with or without leucocytosis, abdominal tenderness, especially over gall-bladder, and rigidity of right rectus muscle. Jaundice is sometimes present as a result of inflammation of the ducts or more likely due to pressure from the stone lying in the duct or the pressure of the distended bladder itself. If the symptoms persist unaltered for a time (two or three days in the severe cases, a week in the milder ones), there is serious danger of gangrene or perforation of the bladder, peritonitis or other grave septic complications. The special signs of danger are increasing rigidity of the muscles and an increasing leucocytosis, frequent blood examinations being made. The pulse, temperature, nausea and vomiting are less important signs. Even if the stone passes the chances are that more stones are present in the bladder and give rise to various "digestive" disturbances. He believes that the advantages of operation while the stones still remain in the gall-bladder or cystic duct and before grave infection has occurred are numerous: (1) Any inflammatory condition can be improved or cured just as drainage cures urinary cystitis; (2) Consequences of obstruction of the common duct are avoided; (3) Further attacks of cystitis and colic are prevented; (4) Further calculus formation is prevented, for the bladder may be removed or rendered so healthy by drainage that no more calculi will form; (5) The dangers of cholecystitis, chronic pancreatitis and cancer of the gall-bladder are much diminished.

THERAPEUTICS.

The Medical Treatment of Neuralgia.—The most effective medicinal agents in combating this condition have undoubtedly been the various coal-tar antipyretics, all of which have in addition an antineuralgic action. E. Meyer (Berl. klin. Woch., Feb. 8, 1904) highly recommends hydrochinon as a substitute for the antineuralgics ordinarily employed, but at the same time urges the use in addition of the physical measures of treatment. The drug is given in increasing doses, from 1 gram to 4 grams in twenty-four hours, in solution. The preferable time for administration is at night as the patient retires. The solution should be freshly made and kept away from the light. Marked perspiration is frequently seen, especially on the affected limb, but no unpleasant after effects were noted except in one case where nausea and vertigo were present. He does not claim that it affords a cure for these cases but believes that it is a very efficient palliative remedy.

Determining the Strength of Digitalis Leaves.—The only safe way to insure a uniform strength of digitalis leaves is the physiological test, according to C. Focke (Arch. d. Pharmacie, Vol. 241, No. 9). Frogs of the species of *Rana temporaria*, caught between the end of June and the end of September, are treated with subcutaneous injections of a 10 per cent. infusion until the proper dose is found which will bring about a permanent contraction of the exposed cardiac muscle in from seven to twenty minutes. An arbitrary value is then determined by dividing the weight of the animal by the dose multiplied by the time. The loss in strength depends chiefly upon age and insufficient drying; it is therefore best to dry the leaves until they can be readily powdered. They should be kept in this condition in air-tight jars and will then retain their potency for a long time. Estimating the percentage of digitoxin is absolutely useless since an almost inert drug may contain as much glycosides as a very active one. Parallel analyses made by two different chemists showed that there is no relation between the results of the chemical and the physiological tests. This is best explained by the fact that certain extractives and other glycosides enable the digitoxin to dissolve readily in water; under the influence of moisture these bodies are probably destroyed, so that the digitoxin is left.

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THE LUNGS OF NEW YORK.

A movement has recently been on foot to preempt parts of certain parks in crowded portions of New York city for the purpose of erecting on them temporary school buildings in which those children who cannot now find accommodation or only incomplete accommodation in our present school buildings may find places. This movement is distinctly reactionary and the suggestion is one that is fraught with danger to present health and with risks for the future.

These parks have been obtained in many cases only after strenuous efforts on the part of those who are unselfishly trying to make life more livable for the poor. It is now well known and is generally unrecognized that the death rate of any portion of a large city depends to no inconsiderable extent on the amount of breathing space allowed the inhabitants. The parks that are situated in the midst of crowded districts are simply invaluable institutions for the saving of lives. They have been well called the breathing spaces of the great social body "the lungs of the city." It would be unfortunate to diminish this influence for good in any way and the adoption of this suggestion with regard to schools would certainly do so.

Education is an extremely important element in life, but it is not nearly so important as health. There are among the medical profession not a few who consider that children are rather harmed than helped by the strenuous methods and constant application demanded of them by modern educational systems. There is no doubt that there may easily be an overanxiety in this matter. There are many children who would know more at fifteen if they had not been stunted in physical, and consequently intellectual, development by unseasonable application to books between seven and ten.

The present movement seems, to some extent at least, to be a political move. There was a promise that sittings should be found for the nearly 80,000 children who are at present without complete facilities for attending school and now even questionable means may be employed to fulfil pre-election promises. This would be unfortunate. Any resumption of the park space already acquired for any other purpose than that it now fulfils would almost surely serve as a precedent in such cases and might lead to the feeling that this sort of thing could be done time and again whenever there seemed to be any special need for it. The reasons might not always be even so good as they are at present, when they are doubtful enough.

The excellent work that has been accomplished by the retiring Tenement House Commissioner and the methods he introduced into his department might thus to some extent be easily nullified. At the present time, instead of the old, awful dumbbell tenement houses, mainly composed of dark rooms, sanitary, comfortable and decent houses, even when intended for many families, are being rapidly built all over the city. Instead of the old, heavy, fetid air which prevailed in the tenement-house district, whenever one crossed the threshold, as many a young doctor in practice has good occasion to know, there is excellent ventilation in these new houses. Instead of windows opening in close proximity to the windows of adjoining houses, no window now opens within twelve feet of the window opposite and more often they are twenty-five feet apart. The air shaft is gone, as it should have gone many years ago. This is paying attention to the lungs of the great city body politic from another standpoint and already it has accomplished a noteworthy reduction in the mortality in crowded districts. It is improvements like this and those that have been secured in the small park system that must by all

means be maintained if the new administration is to have the confidence of New York citizens.

Physicians are naturally more interested in these matters than the rest of the community. It behooves the medical profession then to use its influence wherever possible for the conservation of present gain with the hope of securing still further advances in the city's sanitation. On these two subjects the preservation of our parks and the maintenance of the tenement-house law, with the enforcement of all its important regulations, physicians must concern themselves.

The present administration has given every sign of a sincere desire to accomplish the duties imposed upon it in every department. Let us hope that in these grave questions of the public health there shall be no derogation from the high standards that have been set by the old Departments of Health and of Tenement Houses, but on the contrary, that we shall have what is the only guarantee of the substantial maintenance of what has been gained up to the present, the further progress that will assure the continued amelioration even of our present satisfactory hopeful conditions.

"AS THROUGH A GLASS—DARKLY."

The tenth annual report of the Craig Colony for Epileptics, which has been lately issued, is a most valuable document, and one which should reflect great credit upon the managers and officers of the institution at Sonyea.

One of the principal items of interest in this pamphlet, to the medical observer at least, is the report of the Craig-Spratling gun, which seems to have exploded a bursting shell into the theory that epilepsy is not infrequently caused by the eye strain, resulting from refractive errors, the correction of which, it has been maintained, would cure the disease.

Whatever the progress of modern ophthalmology may have been, its most strenuous upholders and most ardent admirers cannot deny that its standing in the general profession, among its sister specialties, and even in the laity itself, has been most seriously injured, if not irreparably impaired, by the extravagant eulogies of yet untested procedures and the utterly fallacious hopes of cures, that have been loudly heralded by certain men.

To such an extent have these methods been advertised, and written up, by their originators and their disciples, that a long-suffering and disappointed public, weary of a failure that would be classed in a business community as "non-delivery of the goods," have risen in their wrath and have mentally consigned the "eye strain" of the ophthalmologist,—with the "brain fag" of the neurologist,—to the limbo of the "refraction parlor" of the shop-keeping optician, and to the columns of the testimonials of the cure of nervous diseases, in the daily newspapers. There is not an ophthalmic surgeon in the country who has not, in the last ten years, exerted all the skill at his command in his efforts to undo the unhappy results of ill-advised tenotomies, and now, according to this report of Dr. W. P. Spratling, the use of glasses has proved to be anything but an unmixed blessing to the epileptics at Craig Colony.

As a nation, we Americans have lived a rapid and energetic life, and if it is true, that some of us have a skeleton in our nursery closets, we can hardly expect that its bones will not rattle to the music that was piped to our ancestors, in the days when men preferred Port wine to sarsaparilla, and women loved not only widely, but too well. The sins of the father are apt to be visited on the children, to the third and fourth generation, and the epileptic inheritance is hardly one that can be discounted by the cylindric glass of fashion, or the prismatic mold of form. No one can doubt the efficacy of glasses in certain cases, or question their absolute necessity, but their adaptation has not, as yet, driven all other remedial measures from the field, and we are still skeptical as to their power to reduce a congenital dislocation of the hip, or their ability to control an epidemic of yellow fever. And yet, we *are* asked to believe, that their prescription will modify, if not remove, one of the most serious and deeply rooted ills, that human flesh is heir to.

And now let us turn to these two reports, and compare the happy and rosy fancies of the first, with the sad and lead-colored facts of the second. On page 46 Dr. Spratling states as follows under the heading of "Eye Strain and Epilepsy":

"Dr. Geo. M. Gould, of Philadelphia, has long been of the opinion that epilepsy is not infrequently caused by eye strain, the relief of which would cure the disease. In my last annual report reference was made to the work of Drs. Gould and Bennett in carefully examining and fitting 68 patients at the Colony with glasses. We quote from the report referred to in part as follows:

"'The preliminary report of this work published by Drs. Gould and Bennett in *American Medicine* for September 18, last, is full of interest. Among other things the report states:

"'The astonishing fact, and one that we think deserves most serious attention, is the enormous propor-

tion among these patients of cases of injurious astigmatic and anisometropic defects. Sixty-seven of 68 had astigmatism and it is noteworthy that about one-half of the entire number of patients had unsymmetric astigmatism, a defect which almost invariably produces the most injurious results upon cerebral and assimilative function. . . . We do not say that these high and most injurious ametropic defects caused the epilepsies of these patients; that can only be determined in future by the careful records of seizures to be kept and compared with those of the past.'

"If there is anything of value in the treatment of epilepsy along this line, we are anxious to know it, and all patients so carefully fitted with glasses by Drs. Gould and Bennett, are being especially observed so that in a year or so we may make comparisons of their seizures before they wear glasses and after."

This arrangement strikes us as a most fair and impartial method of testing any virtue that may lie in the correction of refractive defects, for the relief of eye strain, producing epileptic seizures. The experiment was to be made at Sonyea, where the environment and opportunities were better adapted for such tests than in any other place in this country, and the glasses were to be fitted—if not by the originators—at least by the upholders and defenders of the faith. Medicine is proverbially a conservative science, and we can hardly expect the general practitioner to abandon his time-hallowed armamentarium, for what our Western colleagues have flippantly and disrespectfully alluded to "as a self-advertised, warranted not to rub off, blown-in-the-glass, method of cure." Certainly not, at least, until its claims have a firmer foundation than the mere *ipse dixits* of a few visionary enthusiasts.

That this caution was not unnecessary is farther shown by Dr. Spratling, who goes on to say (after a year's trial) in regard to the result of the adaptation of glasses:

"We regret having to report disappointing results. The table that follows shows that one patient only out of the 68 experienced any benefit in his disease while wearing glasses. This man's attacks were usually severe and were preceded by a definite bilateral motor aura. His mental condition was unimproved, and he has now gone ten months without a seizure. He had four attacks in October and four in November, after being fitted with glasses late in August, 1902."

The table referred to is full of interest, particularly in regard to Case X of the male and Case XI of the female list. In both of these the number of seizures were reported as 0 in the three months preceding the prescription of glasses and yet, in each the number of attacks increased to a grand total of nine in the succeeding half year. Now, it is a poor rule that will not work both ways, in medicine as in anything else, and if, as Dr. Gould states, it is true that an uncorrected astigmatism will produce an eye strain that may in turn result in epilepsy, how does he account for the increase in the morbid symptoms in these two cases, which appears to be concomitant with the installation of compensating glasses? It is a perfectly evident fact, that the placing of a cylindric lens of any number, before an emmetropic eye, will produce an artificial astigmatism, which will of course correspond to the strength of the glass employed, and, under other hands it is possible that such a glass might have been used when it was not indicated. As, however, the glasses were fitted by Drs. Gould and Bennett in person, it can only be explained on the ground of the increase of some exciting condition, which the glasses were unable to control, and which in itself is a confession of weakness in the theory, and an indication of failure in its action.

That Dr. Gould may not regard it in this light, and that he may rejoice more over the one ewe lamb that was saved, than he will sorrow over the sixty-six cases that fell by the wayside, seems probable ,as his only remark on the results, when brought to his notice, was: "The unsatisfactory results do not affect the fundamental fact that in a certain proportion of cases the cause, or a contributing cause, may be, and is, eye strain. The results at Craig Colony, I suspect, are due to the fact that in chronic cases and under the conditions, cure is not to be expected. Even in the younger patients, the constant attention of the oculist and of optician is requisite, and this could not be supplied at the Colony.

"I have had one case of typical grand mal in private practice, free now from attacks for four years; the cure due to relief of eye strain. In general, however, the result of the test at Craig Colony re-emphasizes the old truth that the cure of epilepsy consists in its prevention. If proper glasses could be given as a preventive measure in young epileptics, and the care of oculist and optician insured, I have no doubt that epilepsy could be warded off in a certain proportion of cases."

Now, what Dr. Gould may mean, by the *"constant"* attention of the oculist and optician we do not know. We have heard of ambitious students of foreign tongues, who "slept with their dictionaries," but we have never considered it essential that epileptic patients should either breakfast with their oculists or sup with their opticians. These particular patients were carefully fitted to

glasses by the men most interested in the results, and, as the report says, that they were under the *daily* care of one of the staff of the Colony, it does seem as if all the necessary requirements had been fulfilled.

The whole truth of the matter is, that we have, from a neurological standpoint, given a most undue and unwarranted prominence to the ills that the errors of refraction are capable of producing, and have then placed an almost fanatical and child-like confidence in the power of glasses to relieve them.

We have not only tested the eyes of the living, but we have ruthlessly investigated the post-mortuary murmurs of the past, and have even invaded the cold *hic jacets* of the dead. We have been taught that King Arthur should have been treated by Merlin for "brain fag"—that the chronically acquired diplopia of Brian Boru ought to have been relieved by prisms, and that the Epistle to the Corinthians was curtailed by the *migraine* of St. Paul, which was due, probably, to latent hypermetropia, uncorrected by convex glasses. Unfortunately all these illustrious personages have long since passed away, and their testimony is no more available than was the evidence of the Texan horse thief, that was hanged first and then tried afterward.

These theories, however, are all merely scientific toys—the pleasing musings of an idle hour. At the best, they are useless to the practical physician and their virtues may be summed up in the trite and classical criticism of a previous generation: "there is much in the world that is both new and true, but unfortunately those things that are new, are not true, and those things that are true are not new."

PHARMACY AND MEDICINE.

At the seventy-fifth annual meeting of the College of Pharmacy of the City of New York, held last Tuesday evening, a unanimous affirmative vote was cast for the ratification of the amalgamation of the College of Pharmacy with Columbia University, the former to represent the pharmaceutical faculty in the University development.

This step is one of much importance not only to the many pharmaceutical interests of this city and country but to the medical interests of the city as well.

It is now only about a hundred years since a pharmacist first isolated morphine from opium and opened the way to a great stream of investigation that has made modern pharmacology possible and the study of the physiological action of potent drugs effective. It may come as a painful surprise to many physicians that the greatest part of this work of investigation and discovery has been carried out not by the students of medicine but by pharmaceutical chemists and were it not for them we would still be dosing our patients with the nauseous draughts that were given by Paracelsus, Boerhaave, Sydenham and our medical forebears.

The investigation of active principles has been as keen and as strictly professional in its aims and enthusiasms as has been the search for changes in morphological structure in nerve and viscus. Out of the former have been created large commercial enterprises that have pushed forward and given to the profession not only practical standard and palatable pharmaceuticals but the great flood of newer synthetics without many of which the modern physician would be stripped of much of his power to comfort and to heal.

Pharmacy has often been called the handmaiden of medicine. In therapeutics, if the signs be read aright, we fear that the physician has wandered far from the paths of research, and is now the patient and blind follower of the more active, wide-awake and enterprising pharmaceutical chemist.

This, however, is but a swing of the pendulum and we hope that the lessons taught will have a salutary effect in awakening medical interests to the situation that confronts them. Behind the veil of commercialism, too thick at times it must be confessed, to be entitled to such a mild term, perfectly ethical investigations have been encouraged by the pharmaceutical interests in this and other lands, but many of us have been blinded to this development because of the commercialism that has placed pharmaceutical enterprises under an ethical ban.

In this amalgamation we see the development of a broad university ideal such as is found in our European centers. By it we witness the welding of the best interests of scientific pharmacy and practical medicine, and in the union of one of our oldest and best pharmaceutical colleges with New York's greatest university we can confidently hope to see the standards of pharmaceutical education raised to a level worthy of its professional heritage and to look forward to the time when the professional developments in pharmaceutical education will animate, govern and regulate the tradesman.

ECHOES AND NEWS.

NEW YORK.

Infectious Diseases in the Bronx.—An epidemic of measles and scarlet fever has broken out in the Bronx, and at the present time there are more than 400 cases of measles on record with the Bronx Board of Health and between 150 and 200 cases of scarlet fever, with a daily increase of cases. The Department of Health in the Bronx is crippled by the need of disinfectors, there being only four men to do this work. It is expected that additional funds will be provided this week.

New Scholarships for College of Physicians and Surgeons.—The Committee on Scholarships at Columbia has announced five Harsen scholarships for the next Academic year—two for the second year class, two for the third, and one for the fourth. Also eight Vanderbilt and Faculty annuities, to be awarded upon presentation of satisfactory evidence as to ability, class standing and moral character. Announcement of successful applicants will be made about July 1. Each scholarship will be worth $250, of which $125 is to be paid at the beginning of each half year. There are no gratuities provided for students of the first year.

Special Medical Courses at Teachers College.—Teachers College has announced a special course of lectures in connection with its regular work in physical education and its special one year's course, arranged at the request of the Society of Superintendents of Training Schools for Nurses for preparing trained nurses to become superintendents of hospitals and principals of training schools for nurses. Two lectures on the nervous system have already been given by Dr. S. E. Jelliffe. Two will be given by Dr. W. A. Bastedo, on materia medica, and methods of teaching it. Other similar lectures will follow.

Measles Return.—The record of cases of the past few weeks has convinced the officers of the Board of Health that the measles have struck town again in the more or less epidemic form which they seem to take every other year or so, which has given rise to the expression that "measles skip a year." There are at present 1,435 acute cases in the five boroughs, and the number of cases convalescent raise the list to over double that number. It is not possible to state positively how the present number of cases of measles compares with that of previous outbreaks, as figures have been approximately complete only in the past few years, but the present number exceeds that of any other year since 1898.

Mt. Sinai Attending Physicians.—In addition to the attending physicians mentioned in last week's Medical News, the following should be included: Attending Genito-urinary Surgeon, Dr. H. Goldenberg; Adjunct Attending Genito-urinary Surgeon, Dr. Martin W. Ware; Adjunct Attending Physician (Children), Dr. Henry Heiman; Pathologist, Dr. F. S. Mandlebaum; Assistant Pathologists, Dr. E. Libman, Dr. E. P. Bernstein, Dr. Herbert L. Celler; Anesthetists, Dr. M. L. Maduro, Dr. Myron P. Denton; Admitting Physician, Dr. Max Rosenberg.

The East Side Physicians' Association.—This Association held its first annual dinner at the Tuxedo, March 12. Dr. R. Abrahams presided. The following gentlemen responded to toasts: Dr. Ignatz Morvay Rottenberg, President of the Association, answered to the toast "Our Society;" Health Commissioner, Dr. Thomas Darlington, responded to "The Health Department and the Physician;" Prof. Richard James H. Gottheil dilated on "Medicine and Humor," and Mr. Carl Hauser humorously discussed the difference between the East Side and the West Side Physicians.

Watertown Epidemic Abating.—Dr. George A. Soper, of New York, the sanitary expert, who is in charge of the typhoid fever situation at Watertown, says that there is a marked improvement. The number of cases reported daily shows a decided decrease, and the total number of cases is much less. The number of cases now in the city is less than 500. Arrangements are practically completed for supplying the city with pure spring water. Some tank wagons will be run until the filtration plant is in operation next fall.

Proposed State Water and Sewer Commission.—A bill has been introduced at Albany which places the water and sewerage systems of all towns in the State under control of a Board of Management. This board has power to plan new sewerage and water plants, to provide for the extension and improvement of old plants, and to exercise legal control over all conditions detrimental to public health. The salary of each commissioner is placed at $8,000, a secretary will receive $3,500, a marshal $1,500, and the clerical force consisting of inspectors, bacteriologists, chemists, etc., will be the other officers. As the bill reads the commissions will "consist of three competent persons who shall be appointed by the Governor by and with the consent of the Senate for a term of five years. One shall be a competent civil and hydraulic engineer and one a competent sanitary engineer and bacteriologist." Nothing is said about the third, but if the measure goes through it is likely that a medical man will be appointed.

New York State Lunacy Report.—The fifteenth annual report of the State Commission in Lunacy was presented to the legislature last week. The total cost of maintaining the 24,187 insane in the State hospitals during the last year was $4,104,689, and the average weekly per capita cost was $3.32, an increase of twenty cents a week over the preceding year, or a gross addition to the maintenance fund of $382,342. In addition the commission expended $632,000 for new buildings and extraordinary improvements. Five thousand new cases of insanity developed during the year, or 434 more than during the previous year. There were 1,263 recoveries and 1,100 were also sufficiently improved by treatment to enable them to return to their homes. The percentage of recoveries was 24.72, as against 24.60 the preceding year. The total number of insane in all institutions was 25,934.

Immigrant Lunatics.—The commission reports a continued and increasing burden resulting from the admission to the institutions in and about New York City of alien lunatics. Notwithstanding increased inspection at Ellis Island and other ports of entry a considerable increase in the number of admissions of patients of this class was noticed during the year. Difficulty is experienced by the commission in returning these aliens at the expense of the steamship companies bringing them to this country because of inability to determine the antecedents of many of this class owing to their confused mental conditions. The commission refers to the constant increase in the number of old and demented cases in the State hospitals, and suggests as a possible relief to existing conditions the boarding out system of the insane in private families, now so successfully practised in the State of Massachusetts. The commis-

sion points out that if this system were adopted by the State, the closest inspection of the insane, even when cared for in their own families at a per capita rate to be allowed them, could be provided.

Colony Offshoots.—The commission directs attention to the latest development in the way of colony offshoots from the large State hospitals, namely, the fitting up and occupancy of the lake side cottage and accessory buildings in connection with the Rochester State Hospital. These buildings are located on the shore of Lake Ontario, several miles distant from the hospital, and during last summer large parties from the hospital were installed at the colony, the stay usually lasting some two or three weeks for each party, with resultant benefit to the patients. The most important development in this direction, however, will be the possible using of the old Sammis Hotel buildings, on Fire Island, now under charge of the Quarantine Department. The commission renews its recommendation for the establishment of a reception hospital in New York City designed for the immediate care and treatment of acute and curable cases of insanity; that arrangements be made at general hospitals in the larger cities and towns for the temporary detention of emergency cases, this provision supplanting the use of jails and station houses for this purpose; also the establishment of so-called convalescent houses at a distance from the hospitals for patients not sufficiently recovered to return home, yet able to leave the institution.

Immigration and Insanity.—A State board of expert sanity inspectors, to be stationed at Ellis Island, and to inspect immigrants with a view of detecting those in such stages of mental weakness as would lead to their becoming a public charge, is provided for in a bill to be introduced in behalf of the State Commission in Lunacy. Although immigration is wholly a national Government affair, it is said that the United States Commissioner of Immigration is in favor of the proposition for a State board, and that the necessary permission would be granted by the general Government. The interest of the State in the matter is conceded, as a large proportion of the mentally defective become charges upon the State within a short time. It is estimated that the expense under the proposed act would not exceed $25,000 a year, which would include one chief inspector at $5,000, two inspectors at $3,000, a male interpreter at $2,000, and a woman interpreter at $1,500 per year. It is said that the foreign-born inmates of the hospitals for the insane number more than 50 per cent. of the whole, and it is believed that the proposed inspectors, by their exclusion of mentally defective immigrants, would save all the cost of the board. The United States Marine Hospital has charge of this matter at present, but it does not employ experts in mental disease, and there is no means of detecting mental disease except through a physical manifestation of it. It is said by the chief officer of the New York City Pavilion for the Insane, that often insane patients are received who have been in the country only a few days or months. The city of New York has no local interest in the matter, as such patients become a State charge. In a letter on the subject, Commissioner of Immigration Williams says that whenever this proposed board should determine that an immigrant was insane at the time of his taking passage, he could be deported at the expense of the steamship company; and that if no such proof existed he could be deported at any time within two years at the expense of the Government. The proposed bill is said to be favored by Gov. Odell.

Mt. Sinai Hospital.—With impressive ceremonies and in the presence of the Governor of the State and other officials the new Mount Sinai Hospital was opened last Wednesday afternoon for work. One of the speakers, who has long been a friend of the institution, referred to the time when Mount Sinai was struggling to raise a $10,000 fund for the sake of continuing its mission, and he spoke with a glow of pride of what the charity had become. Occupying a whole block and comprising ten buildings, costing in all nearly $3,000,000, the Mount Sinai Hospital was revealed Wednesday as a monument to the generous impulses of those who had for many years labored to upbuild it. More than fifteen thousand persons had been bidden to the public reception and two-thirds of that number were present Wednesday afternoon and evening. The block from Fifth to Madison avenue and from One Hundred and First to One Hundred and Second street, which the buildings occupy, was guarded by platoons of police, who kept the throng moving to and from the doors. Sixty guides escorted parties of fifty visitors each through the buildings, for so many were the halls and corridors and wards that the guests might have become confused in the place and portions of the hospital would have become overcrowded. Governor Odell and former Lieutenant-Governor Woodruff, Charles V. Fornes, president of the Board of Aldermen, representing Mayor McClellan, and other prominent men arrived at one o'clock and were escorted to the directors' room. Isaac Wallach, president of the institution, made an address of welcome, after which the Rev. Dr. Samuel Schulman, rabbi of the Temple Beth-el, offered prayer. Mr. Joseph Fox, in the absence of Isaac Stern, chairman of the Building Committee, who is ill, presented the keys of the hospital to the directors. Governor Odell was then introduced: "I have been much interested in the work of enlarging Mount Sinai Hospital," said the Governor, "and I take this opportunity to congratulate you on your success. The work accomplished by such private institutions as this is one of unselfish interest. I have no doubt that in this hospital devoted to the alleviation of human suffering, which knows no creed or nationality, there will be found a field which will call for the greatest effort and sacrifice on your part. I have no doubt, because I know the generous impulses of your race, that whatever is demanded will be forthcoming."

Mr. Fornes praised the unselfish spirit which had called Mount Sinai Hospital into being.

Edward Lauterbach referred to the early struggles of the institution and to the success which had finally crowned its work. "There is a distressing spectacle in this city," said he, "and it is that kindred institutions are threatened with diminution in great services because of lack of funds. That condition can never come to Mount Sinai as long as the pulse of the great Hebrew community beats in unison with those of its directors, whose sacred duty it is to preserve and maintain it."

All of the visitors were deeply impressed by the size and convenience of the buildings. Although the structures are separate in appearance, they are in reality so connected by means of ground floor corridors that there is communication with all parts of the institution. The buildings are of pressed brick and limestone and are constructed in the most substantial manner. Five of them, the medical, surgical

and private hospitals and the children's and isolation pavilions, are for the housing of patients, and they contain in all 456 beds. Every possible detail has been followed out which will insure cleanliness and freedom from infection. There are no sharp corners or angles anywhere in the institution except in a few ornamental portions. The corners of the walls and the places where the floors and the walls join are rounded so that there are no angles in which dust may collect. Each building has an independent ventilating system, by which air drawn from high above the street level into the cellar is filtered and distributed through the building by means of large fans after it has been warmed to the desired temperature.

Typhoid at Poughkeepsie.—Within a few weeks many cases of typhoid fever have developed in that city, and new cases are being reported daily at Vassar Hospital, twenty-one patients now being treated for that disease. The situation is regarded so grave that last Wednesday a conservative local paper declared that the attention of the State Board of Health should be called to the epidemic, and that vigorous sanitary methods must be taken to wipe out the disease. It is further urged that the city authorities might wisely close every well and stop all sources of drinking supply except the city water, which latter is taken from the Hudson River and sand filtered.

Health Inspectors.—An excellent bill is now before the Assembly relative to the grading of Inspectors on the staff of the Board of Health of New York, which merits the support of public-spirited citizens. It amends the charter of New York by the addition of a section providing that on and after the first day of January, 1905, all Health Department Inspectors who have been for fifteen years in that work shall be classified in the first grade; those of ten and less than fifteen years' service in the second grade; those of from five to ten years' service in the third grade, and all of less than five years' service, including all who may hereafter be appointed, in the fourth grade. Continuous and faithful service will entitle an Inspector to be advanced from a lower grade to a higher one as he passes the five, ten, and fifteen year periods respectively. The pay of the several grades is fixed as follows: Fourth grade, $1,200 per annum; third grade, $1,500; second grade, $1,800; first grade, $2,100. These salaries are subject to such deductions for sickness, absence on vacation, fines, and forfeitures as the Board of Health shall prescribe by rules applicable to all grades alike. The work of the Health Department is a service of experts. It calls for special knowledge, and in no branch of the public work is experience more valuable. It is not to be expected that any one qualified to pass the civil service examination and undertake the duties of an Inspectorship can be had for less than $1,200 a year. He should be a physician or an engineer, and to secure promotion he must give up all opportunity for another career. If after five years he is not worth $1,500 he does not belong in the service; and if after fifteen years, by which time the average Inspector will have reached or passed forty, he cannot be sure of a salary of $2,100 at least, he has absolutely no incentive to make the work of the department more than a temporary convenience, to be abandoned as soon as any other opportunity is offered. Above all things, the faithful Inspector who attends to his duties and not to his "pull" must be protected against the injustice of remaining stationary in his position and salary while new men with more potent influence are appointed at higher salaries and put over him. The efficiency of the public sanitary administration depends upon the judgment and experience of our Health Inspectors. If they are inefficient or corrupt the Board of Health is powerless. The salary demands of the Inspectors are extremely moderate, and the principle for which they contend in urging the enactment of the bill referred to is too sound to permit discussion.—N. Y. *Times.*

PHILADELPHIA.

Typhoid Fever.—Though the typhoid fever cases for the past week were considerably less than during the preceding week, the disease is expected in almost epidemic form in the ensuing month. This is because of the exceedingly filthy water that has been supplied during the recent high freshets in the rivers. Filter beds are promised but seem to be still far in the future.

Pharmacist Examinations.—The report of the last examination of the State Pharmaceutical Examining Board shows a large percentage of failures to secure certificates. Of the 215 applicants for the certificate of registered pharmacist, only 136 qualified; of the 138 who sought to be qualified assistant, only 88 passed.

Medical Laboratories of the University of Pennsylvania.—At the dedication of these laboratories on June 10, many noted physicians will deliver addresses. Among the names already announced are those of Dr. H. P. Bowditch, of Harvard; Dr. R. H. Chittenden, of Yale; Dr. George Dock, of Ann Arbor; Dr. H. C. Wood, of the University of Pennsylvania. The general committee of arrangements will hold its first meeting on March 19. Many of the members of the American Medical Association, which meets at Atlantic City during this week, are expected to attend the exercises. The laboratories have been three years in building, the approximate cost being $700,000.

Filariasis.—At the meeting of the Pathological Society on March 10, Dr. D. Riesman showed for Dr. F. H. Howard, of Williamstown, Mass., the heart of a dog that contained numerous specimens of the *Filaria immitis*. In discussing the question of filariasis, Dr. Allen J. Smith advanced a hypothesis to explain the periodic appearance of the filaria embryos in the peripheral circulation. He believes that the phenomenon depends on the caliber of the peripheral blood vessels. During the daytime, or the period of the host's activity, the tonic contraction of these vessels do not permit the passage through them of the embryo parasites. During the period of rest the vessels relax sufficiently to allow the parasites to appear in them. This is believed to be possible without causing capillary embolism.

Acute Hemorrhagic Leucemia.—A case of this imperfectly understood condition was reported at the section on Medicine of the College of Physicians, March 14, by Drs. J. H. Musser, J. N. Wistar and N. B. Gwyn. The patient was a male, aged fifty-one years, with a good family and personal history. The disease began as a sore throat, the patient thinking he had taken cold. At about the same time hemorrhagic spots appeared on the forehead. A few days later one of the postauricular lymphnodes was found to be enlarged; this was followed by involvement of the postcervical nodes, the parotid, and submaxillary glands. There was bleeding from the gums and tonsils, with suffusions of blood over the chest and legs. The temperature rose as high as 103° F. The blood count showed red cells below

two million, leucocytes 382,000; the differential count gave 98 per cent. lymphocytes. Blood cultures were sterile. The patient died on the forty-fifth day of the disease.

Lorenz to Receive Degree from Jefferson.—It is announced that Dr. Adolph Lorenz will be present at the annual commencement of Jefferson Medical College in May to receive the honorary degree of Doctor of Laws. He is expected to take part in a clinic to be held at the hospital of the college a few days later, at which Dr. Albert Hoffa, of Berlin, will also be present and operate. Prominent English orthopedic surgeons are also to attend the clinic.

Free Hospital for Poor Consumptives.—At the annual meeting of the board of this institution March 14, President Lawrence F. Flick said there had been such a diminution in the amount of the donations received during the past year that the society had been compelled to cease maintaining thirty free beds in the hospitals of Philadelphia. These had been supported for several years for consumptives who for various reasons could not be cared for at the White Haven Sanitarium. Dr. Flick believes this drop in donations to be due to the erroneous impression that Mr. Phipps had also endowed the White Haven institution when he made his gift to Philadelphia. There is a waiting list of over 300 patients for the sanitarium. Dr. Flick recommends the establishment of a farm for convalescents where they can be employed at partially remunerative wages. Election of officers resulted in the reelection of Dr. Flick as President.

The Henry Phipps Institute.—The fifth lecture in the International Course, given under the auspices of the Phipps Institute, will be delivered by Prof. Eduardo Maragliano, of Genoa, Italy, on Monday, March 28, at the Witherspoon Bldg., Philadelphia; the subject being "The Specific Therapy of Tuberculosis and Vaccination against the Disease." The profession at large is invited to attend.

CHICAGO.

Hospitals Seek New Law.—The representatives of the various hospitals of the city met recently in the rooms of the Chicago Medical Society to discuss suggested changes in the city hospital ordinance, which is said to be so defective that, were it enforced, no hospital could operate under its provisions. After considerable discussion, a subcommittee was appointed to draft a new ordinance. The members of this committee are Drs. D. A. K. Steele, of the Chicago Hospital; L. Blake Baldwin, of the Samaritan Hospital; A. J. Ochsner, of Augustana Hospital; J. H. Hoelscher, of Alexian Brothers' Hospital, and M. L. Harris, of the Passavant Memorial Hospital.

Society and Criminals.—In an interview, published in the Chicago *Inter-Ocean*, March 6, Dr. G. Frank Lydston, among other things, says that the individual criminal is not responsible for his crime. Society itself is to blame for all the evils that exist in it. Under the present social system the degenerate classes—the criminals, insane, inebriates, and paupers—are increasing almost three times as fast as the population, which threatens to result in the degeneracy of the American people. The evils of society are the diseases of society. There is, then, a pathology of the social body, comprising most of the evils from which society suffers—crime, social evil, pauperisms, insanity in its sociological relation, anarchy, by which the author means destructiveness; political corruption, and disturbances incidental to economic and industrial activities. He contends that degeneracy underlies all social evils. Any marked retrogression in the scale of development constitutes degeneracy. These evidences of degeneracy are most often found in the crime class, for degeneracy constitutes the underlying cause of criminality. Any given social system has just about the proportion and kind of degenerates that it deserves. If Chicago is overrun with criminals, if it is filled with paupers, if it sends hundreds of insane to the public institutions, one may know that, from a scientific standpoint, it deserves them. The criminal is the microbe; the social environment is the soil that gives it growth. The human being is naturally vicious and criminal. This veneer of culture which has gathered through the ages keeps the average man from becoming criminal, but when vice and crime break out, it is simply the barking back to the primitive impulse. If there were no social scheme there would be no crime. Our prevailing crime and vices only begin at the initiation of the communal social state. Our social system begets the inebriates, the epileptics, the evil women, and the insane. They are merely the flotsam and jetsam of the social action. They are the evidences of society's self-contamination. This contamination begins at the marriage license window, for we never have had sense enough to govern matrimony. Matrimony should be run on the same lines as the life insurance business. Until it is, we will have the vicious and the criminal—and the divorce court. When men and women of degenerate tendencies marry, their children will be degenerates. Degenerate children mean thieves, murderers, evil women, paupers, insane, cripples, consumptives, epileptics, and inebriates. If we will control the issuance of the marriage license, confining it to people whom the State knows to be not degenerates, we will do away with much of our costly legal machinery, our asylums, our jails, and our almshouses. Punishment and reform along present lines are failures. It is true that some criminals have been reformed, but, in the aggregate, moral persuasion and punishment have shown no results. Despite all the punishment, crime has increased. While this condition exists, it would be folly to expect we can grow better or even hold our own. Crime is now increasing much more rapidly than the population. From 1850 to 1890—long periods must be considered in a question of this kind—the population of our country has increased 170 per cent.; while the number of our criminals increased 445 per cent. Criminality among females has greatly increased. Suicides have increased. In New York alone in the ten years, between 1886 and 1896, felonies increased 90 per cent. The startling increase in crime in American cities, while due in part to the stupidity of our government in permitting our country to be the dumping ground for the social refuse of Europe, is largely due to influences that are peculiarly American. The American thinks harder, works harder, and for longer hours, and takes less healthful recreation and rest, than any other man on the face of the globe. These conditions tend to favor a faulty, nervous constitution, and with this comes degeneracy and all its attendant evils.

Remedies.—The most efficient remedy would be the absolute prohibition of marriage among people of this class. Public sentiment is against it, but public sentiment favors parental consent, a demand for the age of the parties, and is against the marriage of blood relations. Inebriates should never be allowed to marry, for inebriety is the most important cause of degeneracy. The insane, the epileptic, the pauper, the criminal, or the incurable consumptive, should be denied the right to be married. It may be argued that such control of marriage would be interference with individual rights, but in everything else individual rights are submerged

in social rights. In making an immediate fight against these evils, the author would clean and purify every plague spot in the city. The slums breed the degenerates; society makes the slums. Morality and self-respect are incompatible with squalor, dirt and poverty. We do not find self-respecting people in the slums. He would have model tenements in which the bath would be a prominent feature, clubs for boys and girls, lectures, concerts, theatrical and educational entertainments, clean streets and alleys. This would go far to stem the tide. Free baths and gymnasia are far superior in his opinion to missionaries or civilizers in the slums. The cities may grow deplorably bad, be overrun by degenerates, be terrorized by criminals, be made poor by supporting its paupers and its disease, but the blood of the rural districts is what it must rely upon to keep it from ruin. If Chicago would spend in cleaning itself one-half what it spends for the punishment of people whose crimes are a result of its filthiness, these crimes would be greatly decreased in number. But the American cities largely refuse to do this, and the result is that there is an alarming increase in the number of vicious and criminal persons, and a natural tendency toward degeneracy.

Antitoxin for the Poor.—The City Health Department in its weekly Bulletin makes the following announcement: "(1) Physicians may obtain antitoxin free from the Antitoxin Stations of the Department for the gratuitous treatment of their charity cases. (2) Physicians may have their prescriptions for antitoxin, to be used in their pay practice, filled by any Antitoxin Station at the following prices: No. 1 (1,000 units), 75 cents; No. 2 (2,000), $1.25; No. 3 (3,000 units), $2.25. The physician obtaining free antitoxin receipts for it, and the receipt contains the following certificate: 'I hereby certify that the family of this patient is unable to pay for the antitoxin; that the case is urgent; that I am attending without fee, and that I will report the termination of the case on the postal card form of the Health Department furnished by the druggist.'"

OBITUARY.

Dr. Charles T. Whybrew died from Bright's disease last Tuesday at his home. He was born in New York sixty-two years ago. He was a graduate of the College of Physicians and Surgeons and was a member of the New York County Medical Society.

Dr. Stanley G. Clarke died last Saturday from heart failure. He was born in Camden, Ont., in 1842, and was a graduate of the University of New York. He began the practice of medicine in Brooklyn about fifteen years ago. He was one of the organizers of the Central Throat Hospital, and had been president of its board of managers. He was a member of the Medical Society of the County of Kings, the Brooklyn Medical Society, and Ridgewood Lodge, No. 710, F. and A. M. He had been an inspector of the Board of Health in Brooklyn for several years.

Dr. Verranus Morse, of Brooklyn, died last Wednesday night from the shock following a fracture of the hip. He was born in Springfield, N. H., in 1818, and was graduated from Dartmouth College in 1845, and from the medical department of the New York University four years later, when he took up the practice of medicine in this city. For many years he was treasurer of the New York Medical Society.

Dr. William J. McDermott, of New York, seventy-three years old, a noted surgeon in the Civil War and a personal friend of Presidents Lincoln and Grant, died Saturday, March 12, at his home after a lingering illness. Dr. McDermott was born in Portland, Me., and received his early education in St. John, N. B. In 1853 he was graduated in medicine, and after two years of study in Europe he began practice in the village of Westchester. Dr. McDermott was elected to the Assembly in 1860. When the first call for troops was issued Dr. McDermott resigned from the Assembly and enlisted as surgeon and went to the front with the Sixth New York Volunteers. At the end of three months the regiment re-enlisted as the Sixty-sixth New York Volunteers under Col. Joseph Pinkney. Dr. McDermott saw much active service. He was with Col. Ellsworth when that officer was shot at Alexandria, and ran to his assistance. He assisted in the amputation of Gen. Howard's arm at the battle of Fair Oaks, and participated in the battle of the Wilderness, being left in charge of the wounded. He was captured and sent to Libby Prison, where, after a short term, he was paroled. Shortly before the close of the war he served under Surgeon-General Baxter, and was mustered out in October, 1865. Returning to Westchester he renewed his practice.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, February 27.

THE KING AND MEDICAL EDUCATION—DEATH OF SIR EDWARD SIEVEKING—HOW A FAMOUS ARTIST HAS ACHIEVED LENGTH OF DAYS—THE DISCOVERER OF THE LARYNGOSCOPE—THE REAL SECRET OF LONGEVITY—THE STATE REGISTRATION OF NURSES.

The King has shown his practical interest in the improvement of medical education by offering to contribute $500 toward the establishment of the proposed Institute of Medical Sciences, of which mention was made in a previous letter. The object of this institute is to concentrate the teaching of the fundamental and ancillary sciences which form the basis of medical training. An appeal to the public was issued not long ago, and at a meeting of the Faculty of Medicine held on February 19, it was announced that the Committee had received promises of donations to the amount of $40,000, including donations from the Presidents of the Royal College of Physicians and the Royal College of Surgeons. Mr. Alfred Beit, the South African millionaire, and Messrs. Rothschild have contributed $25,000 and $2,500, respectively. But on the whole the response so far has not been very encouraging to the promoters of the scheme. A Rockefeller is badly needed to aid the cause of medical education in London.

Sir Edward Sieveking, a physician of some celebrity in his day, has just passed away at the age of 88. He came of German stock and was born in London in 1816. He took his doctor's degree at the University of Edinburgh in 1841, and returning to London was appointed to the staff of St. Mary's Hospital, then newly founded, and later to that of the National Hospital for the Paralyzed and Epileptic. He was physician-in-ordinary to Queen Victoria and to Edward VII., when Prince of Wales, and was appointed Physician Extraordinary to the King in 1901. The great disappointment of Sieveking's life was that he happened to be out of the way when he was wanted to take a share in the treatment of our gracious Sovereign in the attack of typhoid fever which so nearly slit the thread of his life in 1871. As Sieveking could not be found, Gull was called in and took the opportunity of establishing himself as a member of the sick prince's household. Gull had a highly cultivated faculty of ingratiating himself with patients, and he naturally put forth all his powers of captivation at the bedside of the heir to the throne, with the result

that he supplanted Sieveking. *Les absents ont toujours tort,* and royalty never forgave the unlucky physician who did not happen to be at hand when he was wanted. Sieveking was for some years editor of a highly respectable but long defunct periodical called the *Medico-Chirurgical Review* and he contributed largely to the literature of medicine, particularly in the field of nervous diseases, to which his connection with the National Hospital led him to give special attention. Among his works may be mentioned the Croonian Lectures on Localization in Disease, delivered before the London College of Physicians in 1866; a monograph on Epilepsy, a second edition of which appeared in 1861; a "Manual of Pathological Anatomy," produced in conjunction with H. Jones, in 1854, and a book entitled "The Medical Adviser in Life Insurance," which has gone through more than one edition, and which is still of value to physicians who have to make medical examinations on behalf of insurance companies. He was also the inventor of that useful little instrument the esthesiometer. Sieveking was made a knight in 1886 and received the honorary degree of Doctor of Laws from the University of Edinburgh. He was for some time a Vice-President of the Royal College of Physicians. He was a worthy man of whom Tacitus might have said *Bonum virum facile dixeris, magnum libenter.*

On February 23, G. F. Watts, the Royal Academician, one of the most famous of British artists, celebrated his eighty-seventh birthday. Although he is so far declined into the vale of years he still walks as one that remembers that the Creator *Os homini sublime dedit celumque tueri jussit.* He walks without a stick and until a few years ago was known as a bold and skillful rider. He does not need to use spectacles. He rises with the sun and goes to bed with it—at least in summer time, when he is often up and at work on his pictures or statues as early as half-past three. Asked what is the secret of his retention of his powers so far beyond the age when most men are content to vegetate, Mr. Watts said to a sympathetic inquirer: "I have always been very sickly. From my earliest years I have never been robust, and, indeed, for this reason I was compelled to refrain from most of the violent exercises of youth. I neither drank nor smoked, nor did anything, in fact. I am a very negative sort of a person. I have just lived—with the exception, of course, of my work. But although I have been successful, far beyond anything I ever hoped when I began life, I cannot say that the joy of life has ever been mine. I enjoy my work; I am intensely interested in it, and am continually endeavoring to improve, for, if I don't improve now, when shall I ever have a chance of doing so? What I mean is that the buoyant exuberance of animal spirits, which leads many people to rejoice in life for the mere sake of living, I have never known. Nor have I ever shrunk from death. In my works I have endeavored to destroy the fear of death, to cause him to be regarded, not as a dread enemy, but as a kindly friend, and such has ever been my feeling. I should, of course, regret to leave work undone and to part from those friends whom I love; but a sense of the weariness of the world and the suffering and sadness which seem to be inherent in mortal things have weakened if not destroyed that joy of life which is common to most young things. The condition of things in this world, so far as I can see it, full of suffering and sorrow, saddens me. I feel it might have been so much better arranged in many things; and the burden of it weighs upon me. That is one reason why I feel that every theological student, before he applies himself to theology, should be thoroughly grounded in physiology. Too often theologians seem to regard the body with contempt, not to say dislike. To live a healthy life, to have the body in which your soul dwells in good working order—these are surely the first duties of the religious man. How many generations have lived and died in the belief that piety consists in the maceration of the body, and in spending many hours upon their knees crying to God to do this, that and the other for them. Instead, how much better it would have been if they had looked after their own health and looked after their neighbors.' In the long run the body avenges itself upon the soul which neglects or abuses its habitation. Being naturally sickly, I had orders to take care of my body. I have never smoked. Greater things were done in the world, immeasurably greater, before tobacco was discovered, than have ever been done since. The cigarette is the handmaid of idleness. I do not say that possibly it may not be a sedative to overwrought nerves; but overwrought nerves in themselves are things that ought not to be. Of wine I have taken very little. In my earlier years I used to take a little, but for a long time I have never touched any form of alcohol. At meals I never drink anything, not even water. Tea—yes, in moderation. And so with regard to food I have been compelled to be very abstemious—to eat moderately and of simple food, to go to bed early (nine o'clock, for the most part), to rise with the sun, to avoid violent exercise, and to enjoy plenty of fresh air." Certainly Mr. Watts' regimen seems to have developed in him a very remarkable fund of vitality, for a person "naturally sickly."

A still more venerable figure is that of Manuel Garcia, the discoverer of the laryngoscope, who will complete his ninety-ninth year on March 17. He was born at Madrid in 1805, and was the brother of Malibran and the teacher of Jenny Lind and many other famous singers. Till a few years ago he was actively engaged in voice training. He discovered the means of observing the interior of the larynx in 1854, and in the following year read his memorable paper, entitled "Physiological Observations on the Human Voice," before the Royal Society of London. His observations were made on himself, and in his examination he used two mirrors —a small one fixed on a long stem for introduction into the pharynx and a large one which served at once to throw the light—it was that of the British sun!—on the small mirror and to enable the observer to see the image formed thereon. The discovery was treated with indifference, and for years the laryngoscope was spoken of by superior persons in this country as a physiological toy. Garcia's paper fell into the hands of Turck, of Vienna, who, after a short trial, declared that "he was far from entertaining too sanguine hopes about the employment of the laryngeal mirror in practice." Fortunately, the mirrors which Turck threw aside were borrowed by Czermak, the physiologist of Budapest, who quickly saw to what good use they might be put. He substituted artificial illumination for the uncertain light of the sun. The light was reflected and concentrated by a large ophthalmoscopic mirror. He had mirrors of different sizes and finally the art of laryngoscopy was presented in a practicable shape to the medical world in a paper which appeared in the *Wiener medizinische Wochenschrift* of March 27, 1858. Among the honors conferred on Manuel Garcia in recognition of his discovery is the degree of Doctor of Medicine, which was given him *honoris causâ* by the University of Königsberg.

The mention of these "grand old men," Watts and Garcia, recalls a recent utterance of a London Coroner, Dr. Wynn Westcott, on the secret of longevity. At an inquest held on the body of an old woman who died

in the Hackney Infirmary at the age of ninety-six, the Coroner remarked that, as usual when an inquest was held on a very old person, it was found that he or she had been an inmate of an infirmary or a workhouse. He attributed this to the regular mode of life to which paupers had of necessity to submit. There can be no doubt that luxury kills more than want, and an English workhouse is an ideal place for the practice of temperance. But the Coroner did not say whether he considered it worth while to enter a workhouse simply to secure a long lease of quasi-vegetable life.

The bill providing for the State Registration of Nurses, referred to in my last letter has been "blocked," that is, marked for opposition by a member who is acting, doubtless at the instigation of the Central Committee of London Hospitals. This body, as has already been said, opposes legislation on the subject almost avowedly on the ground of enlightened self-interest. The result of the opposition is that the bill is virtually hung up for the rest of the session. A rival bill is about to be introduced which will in all probability share the same fate. Meanwhile the Committee appointed by the British Medical Association to consider the question is sitting on what, there is too much reason to fear, will prove to be an addled egg.

THE SPREAD OF TYPHOID FEVER BY CONTACT.

To the Editor of the Medical News:

Sir: In your issue of March 5, in an editorial reference to two communications by Dr. Weil, on typhoid fever in Germany, you make the following statement: "The writer, an American, who had the good fortune to be engaged in the service of the German government as regular 'assistant' in a typhoid laboratory in Elsass, gained exceptional opportunities to study the development of the epidemics which were at that time prevalent. After a careful study of all the factors involved he found himself driven to the conclusion that the water supply played no part in the dissemination of the epidemic, but that the infection was in each case communicated from man to man by personal contact."

"The latter brings home an idea, which is by no means new, inasmuch as it is now more than a year since Koch propounded the theory of 'contact infection,' in typhoid; but *which is still somewhat foreign to Americans.* (Italics mine.) The great German bacteriologist asserted that practically every case of typhoid was due to transference of infected material either mediately or immediately from the person of one victim to the mouth of the next. It appears, however, that the theory is not original even with Koch, but goes back far into the dim and anti-bacteriological days of medicine; since the clinicians of the earlier part of the century, among them Bretonneau and Trousseau, held firmly to it."

Now, Mr. Editor, I must say that your statement that contact infection in typhoid fever is still somewhat foreign to Americans, shows most conclusively that you are not very familiar with recent American literature concerning this disease. In the year 1900 (four years ago) there was published by the Government Printing Office a book of 239 pages, the title of which is as follows: "Abstract of Report on the Origin and Spread of Typhoid Fever in U. S. Military Camps during the Spanish War of 1898." In this report it is shown conclusively that typhoid fever was not disseminated to any large extent by drinking water, but that the chief agent in the dissemination of the disease was contact. Please permit me to give you a few quotations from the conclusions arrived at by the commission that studied typhoid fever in 1898. Some of these are as follows:

"(26) Infected water was not an important factor in the spread of typhoid fever in the national encampments in 1898.

"(29) It is more than likely that men transported infected material on their persons or in their clothing, and thus disseminated the disease.

"(30) Typhoid fever, as it developed in the regimental organizations, was characterized by a series of company epidemics, each one having more or less perfectly its own individual characteristics. The truth of this statement will be evident after the inspection of the charts showing the distribution of typhoid fever among the companies of the different regiments. On making such an examination one must be impressed with the fact so plainly evident there that men who are closely associated developed typhoid fever simultaneously. Men in the same company came down with the disease on the same day. This is still more marked when we study the cases with reference to the tents occupied by the men. Of 1,608 cases of typhoid fever which we have been able to accurately locate in the particular tents in which they occurred, together with the date of commencement of the attack, the results may be summarized as follows: Directly connectable attacks, 563, or 35.01 per cent.; indirectly connectable attacks, 447, or 27.79 per cent. Total connectable attacks, 1,010, or 62.80 per cent. Certain tents were badly infected, and the majority of their inmates developed the disease, while other tents wholly escaped. Blankets and tentage became soiled with typhoid discharges, and in this way the disease was propagated and carried by the company wherever it went. We believe, therefore, that personal contact was a very important factor in the spread of the disease.

"(33) When a command badly infected with typhoid fever changes its location it carries the specific agent of the disease in the bodies of the men, in their clothing, bedding, and tentage.

"(34) Even an ocean voyage does not relieve an infected command of its infection.

"(35) After a command becomes badly infected with typhoid fever, change of location, together with thorough disinfection of all clothing, bedding, etc., is necessary.

"(40) Medical officers should insist that soldiers remove their outer clothing at night when the exigencies of the situation permit. With from 12 to 16 men in a tent, all sleeping in their clothes worn during the day, and possibly with some of them soiled with infected fecal material, the effect upon the general health certainly could not be beneficial, and the possibility of the dissemination of infection must be admitted. If privates in the ranks would give more attention to personal cleanliness and if they were furnished with quarters in which they could keep themselves clean, typhoid fever and other infectious diseases among the troops in the field would be greatly decreased. Our investigations show that tent infection must have been an important factor in the distribution of typhoid fever."

I might give you further quotations, but suffice it to say that no one can look at the chart of typhoid fever in the 15th Minnesota, as given in the volume to which I have referred you and come to any other conclusion than that typhoid fever in that regiment was disseminated largely, if not altogether, by contact. In the complete report, which has not yet been published, ninety-two regiments have been charted, and every chart shows that contact was the principal means by which the disease was spread.

Now, Mr. Editor, I think I am not too positive when I say that whatever Bretonneau or Trousseau may have thought, or whatever Koch propounded "more than a year ago," the fact that typhoid fever is spread largely by contact was first demonstrated by American observers.

W. C. Vaughan.

Ann Arbor, Mich., March 12, 1904.

RELATIVE TO AUTOPSIES IN PUBLIC HOSPITALS.

To the Editor of the MEDICAL NEWS:

SIR: Your editorial in the NEWS of March 5, relative to autopsies in public hospitals, should meet with the approval of the entire medical profession and of the great army of scientists engaged in the study of diseases common to mankind, especially such diseases as Epilepsy and Insanity whose etiology is so obscure at the present time.

To show in part the interest felt in the need of a law permitting autopsies at the Craig Colony, let me quote some extracts from letters I have received on the subject:

Dr. Pearce Bailey—"As President of the New York Neurological Society, I should like to write you to express my conviction of how necessary it is for the good of humanity at large that this Bill be passed. The unfavorable outlook in every case of epilepsy is due, in large part, to the fact that we do not understand what epilepsy is. We can never hope to understand what it is unless we have the fullest opportunity to investigate its underlying causes, and of course the first thing to do is to have larger opportunities for systematic examination of the brains of persons dying of epilepsy."

Dr. Adolph Meyer—"I heartily approve of the reintroduction of the Bill concerning autopsies. The scientific side of the question needs no argument. Autopsies must be available to complete our information about the nature of diseases. In these days when it is possible to perform complete autopsies without any disfigurement or other unpleasant effects on the feelings of friends, we can only make superstition responsible for the objection of people who mistake an opposition of spirit for liberty."

Dr. Frederick Peterson—"It seems to me that such a Bill should be passed. It is certainly in the interest of the epileptic, whose disease needs to be more thoroughly studied than it ever has been before, to the end that we may ultimately discover some means of cure. All of the cases that die at the Colony should be scientifically investigated."

Dr. Roswell Park—"In the interest of science, I think it one of the most important measures of recent years. Any disease of such unknown and mysterious nature as to justify a State institution for the care of sufferers from it, not only justifies, but demands, a most painstaking search into the causes. There never has been in the world such an opportunity afforded for careful study of epilepsy as is now afforded at the Craig Colony, and it would be a great misfortune should morbid sentiment be allowed to interfere with the scientific side of the disease. It seems to me that not only should autopsies be permitted but required, and that every laboratory convenience for its study should be afforded in this research."

Dr. M. Allen Starr—"I am heartily in favor of the Bill. If the Craig Colony is to be of use to the general public as well as to the poor victims of epilepsy, it is only by means of scientific work on the subject."

Dr. Samuel B. Ward—"It appears to me that such permission is very desirable in the interests of science, and will be no hardship to anyone. The Bill certainly ought to pass."

Dr. Henry Hun—"The most important method of study, in my judgment, is the comparison of symptoms observed during life with the lesions found in the nervous system after death. To do this, of course, autopsies are essential. It is most important that autopsies should be promptly held in all cases of death. The Craig Colony should not degenerate into a mere boarding-house for epileptics. The many cases gathered together there should be carefully studied."

Bishop Potter—"Prejudice against such autopsies as you refer to has always struck me as singularly unintelligible. Unless we can look to a public institution to contribute such scientific knowledge as it may be within its reach to obtain, we are punishing the whole community for a somewhat artificial and sentimental forbearance in the case of individuals. That scientific investigations of the bodies of the dead have been of great value in protecting the living, is a fact about which there can be no question. And while I should be disposed to treat the feelings of the surviving relatives with consideration, I think that the bodies of epileptics that die at the Craig Colony should be within the control of the Trustees for such beneficent ends as scientific inquiry may serve."

Dr. Hamilton D. Way—"I trust such Bill may become a law on account of the benefit conferred thereby upon medicine through increased opportunity for dead house study and observation in those cases clinically noted during life."

Dr. E. V. Stoddard—"I think there is no doubt as to the advisability of granting the privilege of making autopsies in certain cases at the Craig Colony. In establishing that institution, the state provided for securing 'the humane, curative, scientific and economical care and treatment of epileptics, exclusive of insane epileptics.'"

Dr. Joseph D. Bryant—"It seems somewhat strange to me that at this day of scientific medical advance and practical escape from the popular prejudice regarding autopsies, than any other idea than one prompting early and free appliance of the only attainable means of affording relief from the physical confusion and mental despair always present with epilepsy, should be manifest. I cannot express it too strongly,—not only the great importance but the great need of early performance of autopsies in this disease,—and I sincerely hope that legal permission will be given for the purpose."

The Craig Colony for Epileptics, Mr. Editor, is deeply interested in the fate of Assembly Bill No. 227. It has happened in the past that we have been denied autopsies in the most valuable cases (such cases having been maintained wholly at the public expense at the Colony for years), the only reason for such refusal being founded on sentiment. This, to be sure, should always be respected, but in these days when autopsies are so carefully made without disfigurement, it would seem that mere sentiment should not be permitted to have the last say in a scientific matter of such vital importance to mankind generally.

The Colony respectfully urges that physicians generally will write members of the legislature of the respective districts, urging the passage of the Craig Colony Autopsy Bill, in the form in which it was introduced as follows:

Assembly Bill No. 227, "An Act to Amend the State Charities Law in Relation to Autopsies at the Craig Colony for Epileptics."

"Section XI. Have power (the superintendent), subject to the supervision and control of the Board of Managers, in case of the death of any patient at such institution, who shall have been maintained therein wholly at the public expense, to make, or cause to be made, an autopsy on the body of such patient."

Very truly yours,

W. P. SPRATLING, M.D.,

Medical Superintendent Craig Colony for Epileptics.

SONYEA, March 10, 1904.

PNEUMONIA AS AN INFECTIOUS DISEASE.—The Rochester Health Bureau has decided to treat pneumonia as an infectious disease, and to ask physicians to report all cases just as they report diphtheria and smallpox.

SOCIETY PROCEEDINGS.

THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE.*

Fifth Regular Meeting, February 17, 1904.

The President, S. J. Meltzer, M.D., in the Chair.

Members Present.—Adler, Calkins, Crampton, Dunham, Ewing, Gies, Jackson, Levene, Lusk, Meltzer, Murlin, Norris, Richards, Wadsworth, Wallace, Wilson, Woodworth, Yatsu.

ABSTRACTS OF THE REPORTS OF ORIGINAL RESEARCHES.†

The Nature and Basis of Sexual Selection in Moths.—By Dr. H. E. Crampton. The object of the investigation described was to obtain a quantitative expression for the strength of the mating instinct in certain species of large Saturnid moths (*Philosamia cynthia* and *Samia cecropia*), and to determine the correlation between the mating instinct and structural characters. The results of earlier statistical studies upon the pupæ of these species were reviewed, dealing with the nature and basis of the process of natural selection during the period before emergence and at emergence. It was shown that (1) those pupæ which die after pupation and prior to metamorphosis are structurally different from and more variable than those individuals which successfully survive the pupal period, (2) those pupæ which become perfect moths are likewise different from those which cannot emerge as perfect moths, and (3) the basis for selective elimination is to be sought in correlation between the various structures. The mating period follows immediately after metamorphosis, when certain individuals with weak mating instincts fail to take part in the production of the next generation, and are thus "sexually eliminated." In order to determine the points mentioned above, pupæ of the two species named were isolated as the time for metamorphosis approached, and upon emergence were given one opportunity to mate. It was therefore possible to compare the pupæ of the two classes of mating and non-mating individuals. The results, briefly stated, are (1) that even slightly imperfect moths possess very little mating instinct, or in other words, that with the structural conditions associated with an imperfect power of emergence, is correlated a low grade of mating ability; (2) that the mating individuals of the perfect class differ structurally to a certain extent from the non-mating ones, but they are very much less variable than the latter class The importance of these results from the standpoints of inheritance and evolution is sufficiently clear to render extended discussion unnecessary.

Observations on a Serous Fluid of Unusually High Molecular Concentration.—By Dr. E. K. Dunham. The fluid was removed from the pleural cavity of a man suffering from lobar pneumonia. The patient was a scene-shifter in a theater and had suffered considerable pain in the chest for four months before his admission to the hospital. His occupation required severe labor for brief periods, during which he became much heated, with intervals of leisure and exposure to cold drafts of air. The immediate reasons for his admission were a chill and inability to continue work. There was nothing unusual in the clinical course of the pneumonia or peculiar in his treatment. A few days after he entered the hospital 400 c.c. of a clear serous fluid was aspirated from the affected side of the chest and was examined on the same day, with the following results: Distinctly alkaline; specific gravity 1.021; depression of freezing point 1.383° C (mean of three examinations with different portions of the fluid, 1.395, 1.385 and 1.370° C. respectively); electricial conductivity 0.009119; chlorine calculated as sodium chloride 0.58 per cent.; total nitrogen 0.84 per cent.; nitrogen from washed tannic acid precipitate expressed in percentage of the fluid 0.83 per cent.; proteid (N x 6.25), 5.21 per cent. of the fluid; traces of reducing substance (sugar ?) after removing proteids with ferric acetate; traces of nitrogen liberated by hypobromite of soda; no extractives of appreciable amount upon shaking with ether, acetic ether or chloroform.

The matter of chief interest in the results was the considerable depression of the freezing point —0.81° C. greater than that by the blood, which was found to be 0.57° C. This 0.81° C. represents nearly 0.438 gram-molecule in solution in excess of the molecular concentration of the blood, and appears to be a clear indication that osmotic interchanges between this fluid and the blood did not freely take place, possibly because of a thick layer of fibrin upon the pleural surfaces. Such a deposit would not, however, explain the high molecular concentration of the fluid. It appears most probable that this was produced subsequent to the formation of the fluid, by changes in the larger molecules originally present in solution or by the solution of substances not at first dissolved. These substances could not be dissociable, because the electrical conductivity was rather lower than is usual in such fluids. If the substances causing the high molecular concentration were organic compounds, they were not extractives soluble in ether, acetic ether or chloroform.

On the assumption that cleavage products of proteid substances, precipitable with tannic acid, might be present and cause the unusual depression of the freezing point, the following experiments were made: Sterile horse serum, which had not been subjected to heat, was divided into portions. Of these some were kept for controls and others were inoculated with pure cultures of *Staphylococcus pyogenes aureus* or Fraenkel's pneumococcus. Freezing-point determinations were made on certain of these portions and the rest were sealed up in pipettes holding 100 c.c. each. These were incubated at 37° C. for a week, when freezing-point determinations were made on one of the controls and one of the tubes inoculated with each of the bacteria mentioned. Cultures at this time showed the presence of great numbers of the species used, with no admixture of other species. The remaining tubes were left in the incubator for several months, when cultures proved to be sterile. The results of physico-chemical examination of these sera are tabulated below:

HORSE SERUM A

	Sterile Controls ° C		Inoculated with Staphylococcus. ° C	
1903				
May 19,	Δ=0.580°;	K=0.009394	Δ=0.585°;	K=0.009370
May 26,	Δ=0.580°;	K=0.009491	Δ=0.585°;	K=0.009674
1904				
Jan. 16,	Δ=0.590°;	K=0.009684	Δ=0.640°;	K=0.010128

HORSE SERUM B

	Sterile Controls ° C		Inoculated with Pneumococcus. ° C	
1903				
May 21,	Δ=0.560°;	K=0.009516	———	———
May 28,	Δ=0.560°;	K=0.009516	Δ=0.580°	———
1904				
Jan. 15,	Δ=0.600°;	K=0.009897	Δ=0.640°;	K=0.010372

These data show but slight changes in the molecular concentration of the sera, and such changes as have occurred occasion an increase in the electrical conduc-

* Proceedings reported by the Secretary, William J. Gies, New York.

† The authors of the reports have furnished the abstracts. The Secretary has made only a few abbreviations and minor alterations in them.

tivity as well as in the depression of the freezing point, showing that dissociable bodies have been produced. The experiments, therefore, fail to explain the high molecular concentration of the serous fluid from the chest, but it is possible that further experimentation in this direction will be more successful.

An Experimental Study of the Eosinophile Cells During Infection with an Animal Parasite—Trichina Spiralis.—By Dr. Eugene L. Opie. (Presented by Dr. James Ewing.) The administration of *Trichina spiralis* to the guinea-pig causes an increase of the eosinophile leucocytes in the blood comparable to that which accompanies human infection. There is no constant alteration of the number of these cells until the end of the second week after infection, when their relative and absolute number rapidly increases and reaches a maximum at the end of the third week. At this time embryonic trichinæ are in process of transmission from the intestinal mucosa by way of the lymphatic vessels and the blood through the lungs to the vascular system. Eosinophile cells accumulate in the mesenteric lymph glands and in the lungs and form foci which resemble small abscesses in which polynuclear leucocytes are replaced by eosinophile cells. These cells are provided with polymorphous nuclei and do not differ from the eosinophile leucocytes of the circulating blood. Accumulation of the eosinophile cells in the mesenteric lymph glands and in the lungs is explained by the transmission of the embryonic parasites through these organs. Increase of eosinophile cells in the blood and in other organs is accompanied by characteristic changes in the bone marrow. The fat is diminished in amount and cellular elements replace it. Cells with eosinophile granulation are present in immense number and particularly numerous are the eosinophile myelocytes, cells peculiar to the bone marrow. Eosinophile cells undergoing mitatic division are more numerous than usual. The number of eosinophile leucocytes in the blood always diminishes before death so that the proportion is usually less than one per cent. Infection with a very large number of trichinæ causes a rapid diminution of the number of eosinophile leucocytes and is quickly fatal. The eosinophile cells of the bone marrow exhibit degenerative changes of which nuclear fragmentation is most characteristic. Similar changes may affect the eosinophile cells of the intestinal mucosa and of the mesenteric glands. Mild infection stimulates the eosinophile cells to multiply, but severe infection causes destruction.

Subcortical Expressive Reflexes and their Spinal Pathways.—Dr. R. S. Woodworth reported interestingly on some experiments done in collaboration with Professor Sherrington in the latter's laboratory. It was shown that in a recently decerebrated cat, powerful sensory stimuli evoked reactions such as in a normal animal would be expressive of pain, anger, and other similar emotions. Such reactions are therefore primarily subcortical reflexes, and not dependent on the organ of consciousness. The "ether cry" also appeared in decerebrate animals. The sensory spinal pathway, by which these signs of pain were aroused, was found by experiments in which partial cross sections of the cord were made, to run not in the posterior but in the lateral columns. The pain pathway from either side of the body runs up both halves of the cord, but more largely up the opposite half.

An Experimental Study of the Cause of Shock.—W. H. Howell. (Presented by S. J. Meltzer.) Prof. Howell's experiments were made upon dogs anesthetized with morphine and ether and brought into a condition of shock by operations of various kinds. Blood-pressure records were obtained in the usual way during the experiment. The following general conclusions were reached: (1) The most important and dangerous feature of severe shock is a long-continued, practically permanent fall in blood pressure to about 20 to 40 mms. of Hg. This condition is designated as vascular shock and is due to a long-lasting loss of activity of the vasoconstrictor centre. (2) A second important result of shock is a very rapid and feeble heart-beat. This condition is designated as cardiac shock; since, although it may result secondarily from the permanent fall in blood-pressure it may also occur quite independently of the vascular shock as a primary result of the operations. Cardiac shock, as far at least as the rate of beat is concerned, is due to a more or less permanent loss of activity of the cardio-inhibitory center. (3) Intravenous infusions of alkaline salt solutions (NaCl 0.6 per cent., Na_2CO_3 0.5 per cent.) cause a rise of pressure by increasing the force of the heart-beat. The effect is more durable than with salt solution alone and may be renewed by repeating the injection. (4) The fundamental cause of vascular and cardiac shock is not exhaustion of the vasomotor and cardio-inhibitory centres from over-activity, but a more or less permanent inhibition of these centres from excessive stimulation of the inhibitory paths.

New Members.—Drs. Isaac Levin and J. P. Atkinson were elected to membership.

Officers for the ensuing term were elected as follows: President, S. J. Meltzer. Vice-President, James Ewing; Secretary, William J. Gies; Librarian, Graham Lusk; Treasurer, Gary N. Calkins.

NEW YORK ACADEMY OF MEDICINE.

Section on Orthopedic Surgery.

Stated Meeting, held February 19, 1904.

The President, Homer Gibney, M.D., in the Chair.

Arthropathies of Locomotor Ataxia.—Dr. George R. Elliott presented several patients from the Montefiore Home. He said that in the first patient the left knee was the only joint affected, showing genu inversum, which should not be confounded with primary genu valgum. There was a certain enlargement of the head of the tibia, edema about the knee-joint and enlargement of the leg and thigh. The left leg and thigh measured one inch more than the right. Incidentally, he wishes to refer to the patient's chief subjective symptom—a metatarsal pain. Four operations have failed to relieve this troublesome symptom. The second patient shown was a man of about fifty-seven years, confined to a wheel-chair and bed. The joints involved were the small joints of the fingers, chiefly the first phalangeal joints. These deformities were globular in shape, painless and devoid of swelling and have been so from the beginning. The patient in his wheel-chair with overcoat on, placed the heels of both feet behind his head, demonstrating the condition common in locomotor ataxia known as muscular hypotonia. The doctor further presented a cast of the hand of a third patient who was unable to be moved. The cast showed very marked globular swellings of the phalangeal joints. This patient also had a very marked arthropathy of the left shoulder so badly involved that he could dislocate the joint at will. The head of the bone was markedly enlarged, the acetabulum filled up and destruction of the capsule and ligaments—all painless from the beginning. Neuropathic arthropathies are not confined to locomotor ataxia, but are found in syringomyelia and certain other special cord diseases. As in the present cases, the characteristic manifestations are rather sudden onset of a painless swelling, usually globular in shape, with partial subsidence and recur-

rence. The globular shape and absence of redness and pain differentiate it from the spindle-shaped, painful swelling of arthritis deformans. Section of an advanced arthropathic joint shows destructive changes. There are usually laxity of the ligaments, rarefaction of the bony parts, general edema about the joint, which extends into and along the limb. It is not an edema that pits on pressure. Only 3 to 4 per cent. of all tabetic patients manifest arthropathies. Statistics show that the affected joints are much more frequent in the lower extremities and not at all common in the small joints, seen in the two cases presented.

Dr. V. P. Gibney, in the discussion, said he thought the laxity of muscles in Case II very interesting, and wanted to know whether that was a common feature of the disease. He thought it extraordinary to see a patient as old as this man, with ligaments so relaxed as to enable him to put his legs over the back of his neck. In those cases he had seen, the laxity of ligaments was in the ankles and knees. The other case was interesting on account of the neuralgia in the internal plantar, and failure to get relief after section of the nerve, but he presumed that the tabes from which the man suffered, rather ruled it out as a case of metatarsalgia.

Dr. R. Sayre said he was sorry not to have heard the remarks on the cases when presented. He had not seen the man's hip, nor seen him standing, but he thought possibly he might be fitted with hip-splint apparatus to hold the hip so he could walk, if simply the ligaments were at fault, through relaxation. In many cases the relaxation affects the joints of knees and ankles as well. Dr. Sayre had had many cases where the patients could walk around comfortably with lateral support on knees, where they were incapable of standing without this support, the ligaments being so relaxed. In these cases the joints are very prone to luxate.

Dr. Brewer said he was interested in the case reported. He had treated a similar case: A neurotic boy who complained of pain in the metatarsal joint of the great toe. He could not step nor walk. There was an extremely tender point over the joint, which was a little thickened and reddened. He had worn a badly fitting shoe, which perhaps caused slight deviation of the toe. The joint was opened and found to be healthy. A little piece of bone was taken away, and the pain was relieved. A return of acute pain occurred, which was relieved by the application of the cautery. This relief continued for a number of weeks, but the pain returned so severely the boy could do nothing. He was in a hysterical, nervous state. He was seen by Dr. Blake in Dr. Brewer's absence, who took out one inch of the internal plantar nerve, affording relief. Three months later, he again operated and took out the whole of the nerve, which presented a small neurofibroma near its origin. The pain came back after a while and the boy underwent a fourth operation, this time Dr. Bull operating. In about three months there was a fifth operation, the result of which is unknown. Dr. Brewer would like more light on the subject of these cases. He thought it rather common to find such laxity of the hip ligaments from non-use, that the case was not extraordinary.

Dr. Elliott said he believed it was a common symptom of locomotor ataxia, known as hypertonia, and, he believed, an early symptom. Neurologists present would doubtless settle that question. In reply to Dr. Gibney he said he believed the condition common. (Reference made by Dr. Gibney to the man putting his foot over his head.) It had nothing to do with arthropathy. In the patient he had presented, there were no changes in the hip-joints. It was due entirely to loss of muscular tone.

Dr. Dana said he could only confirm Dr. Elliott's statement that there is this relaxation, very marked, in most cases of arthropathies, usually associated with atrophy of the head of the bone. He was interested in hearing the remarks about splints for the joints. He thought it a mistake always to put splints on tabetic joints. He cited a case in illustration.

Dr. Brewer said that he believed the case he cited was one of psychosis, and that there was no organic disease of the nerve.

Dr. Sayre said that in marked relaxation of ligaments it was sometimes quite possible to slip the femur on the tibia; when the patient is upright and moves in any direction, there is danger of complete luxation of the joint, and possible rupture of the skin as well by constant violent slips. He had seen those who were incapacitated from going about except on two crutches, who, when properly fitted with apparatus, could walk without a cane. There was sufficient muscular power and sufficient coordination of the muscles to move the legs in anteroposterior motion, if something was put on to limit the lateral deviation. The speaker had a case of Charcot's disease of the ankle in which the ankle resembled osteosarcoma; there was the egg-shell crackling seen in malignant bone diseases. The patient was locked up in a plaster-of-Paris boot from the toe to the knee, in which he walked for a number of months, when a large part of the disability disappeared. In this case, back of the tabes, he had a syphilitic history. He was put on antisyphilitic medicine in large doses. The foot responded beautifully, and the incoordination disappeared. The man still retains his pin point pupils.

Lumbar Pott's Disease.—Dr. Homer Gibney presented a child of twenty months from the Dispensary of New York Hospital, referred as case of lumbar Pott's disease. No disease of the spine was, however, found, but a very marked scorbutic condition in addition to a pronounced general rachitis. The scorbutus responded quickly to treatment and the long posterior rachitic spinal curvature is yielding to a perfectly fitted frame on which the child is placed and mother instructed as to its management.

Acute Infectious Osteomyelitis of the Spine and the Acute Suppurative Perimeningitis.—This was the paper of the evening and was read by Dr. J. Ramsay Hunt.

Dr. Brewer, in the discussion, said he had only seen two such cases, both unrecognized at the time he first saw them. He had been looking for a comprehensive paper giving fuller statistics than could be found in abstracts from foreign literature, and such a paper had been read this evening. He thought it most valuable from a surgical point of view. In each of Dr. Brewer's cases there was a perirenal abscess. The pus was found to issue from diseased vertebral bodies. In both cases there was extreme sepsis. He supposed at first that the trouble came from the kidney. After exploring the kidney and finding it normal, he made a small opening in the psoas, then into the vertebral column, and removed the sequestrum. The first patient died in a week or ten days. After death an autopsy revealed a very extensive process. In the second case, a man had chills and fever, and complained of pain in the back, which had been relieved for a number of days before Dr. Brewer saw him; and with the relief of pain, there was the formation of a large lumbar indurated mass. This was opened. At the first operation a quart of pus was evacuated. The septic symptoms abated, but there was no closure of the sinus. A second operation

was done to remove a supposed diseased and suppurating kidney. By making a large incision, the region of the kidney was exposed, and found to be normal. The psoas was filled with pus;—also a focus in the body of the vertebra. Dr. Brewer said he had another case, but was not sure it was primary septic osteomyelitis. It occurred in the arch. It was an old case operated on before Dr. Brewer saw it. He simply provided better drainage. He thought these cases should be diagnosticated early, and that one should be on the look-out for them. The rate of mortality was high. The vertebral bodies are inaccessible, and require prompt treatment.

Dr. V. Gibney said that those of the Section who had been handling vertebræ for a great many years would feel especially in sympathy with a differential diagnosis. More cases should be recognized than have been in the past. In regard to prognosis of osteomyelitis of the vertebræ and of the hip, when Mr. Smith, of London, began to report cases, and Mr. McNamara followed, there was frightful mortality. As they were recognized earlier, the mortality was much lessened, because their acute infectious nature was understood and prompt measures were taken to secure relief. In place of dangled hips with a few half-opened abscesses, much better hips are now seen; the surgeon goes at once to the focus of disease, removing sometimes a head lying loose in the cavity, fixes the limb in good position, drains well and gets prompt relief and pretty stable hips. During the last year or two, when so much has been said and observed about congenital hips, he had found cases said to be such hips, with one or two tell-tale sinuses on the outer side of the thigh with history of acute abscess, which had opened when the child began to walk lame. A patient came to see Dr. Gibney recently from a distance, troubled with congenital dislocation. He saw a cicatrix on the inner side of the thigh. He was told that at nine months the child had had an acute attack of hip trouble, the abscess opening and soon healing. When the child began to walk no attention was paid to the hip. There was an inch and a half shortening, and the child was labeled with congenital dislocation of the hip. He thought the points emphasized in Dr. Hunt's paper—early recognition and prompt surgical measures adopted for relief—were very opportune. In regard to pachymeningitis, etc., he was reminded of a neurological experience: Dr. Putzell read a paper when we were finding a number of those cases, and the speaker had put on record two or three cases of peripachymeningitis hypertrophica cervicalis—not acute. Those cases are simply eliminated. We have to recognize the disease as osteomyelitis. We have stopped talking about acute suppurative periosteitis and acute peripheral osteitis. Eight or ten years ago Mr. McNamara showed the speaker specimens in Westminster Hospital, declaring it was general osteomyelitis, and could not fairly be called periostitis.

NORTH BRANCH PHILADELPHIA COUNTY MEDICAL SOCIETY.

Stated Meeting, February 10, 1904.

The Chairman, Dr. Samuel Wolfe, in the Chair.

The Unique Position and Value of Mercury in Therapeutics.—Dr. I. Newton Snively read this paper. He stated that in the frequency of its employment, it compared favorably with iron, but that here the similarity ended, the one being a builder up of tissue, while the other is a breaker down of tissue. He called attention to the fact that mercury had through all the ages occupied a prominent position in the materia medica, and reviewed the history of its use and the improvements in its administration in recent years. Without deciding upon the relative cholagogic values of blue mass, calomel and corrosive sublimate, or their means of action, he stated that there was agreement among the profession upon the main indications for the administration of calomel, when such symptoms are present as dull headache, yellow conjunctivia, constipation, sense of weight over the liver; no appetite, and general lassitude, and whether the process takes in one part or the other of the intestinal tract it is agreed that it acts upon the small intestines and upper part of the colon, hastening the contents downward, relieving hepatic engorgement, stimulating intestinal secretions and bile and producing large, watery stools. It is also of value in fractional doses in the early stages of typhoid fever and the diarrheal maladies of childhood. It passes through the stomach unchanged and thus does not interfere with the functions of this organ. Thorough trituration is of value and the joint administration of an alkali, preferably, sodium bicarbonate increases its effectiveness.

Therapeutics of Arsenic.—This paper was read by Dr. Howard S. Anders, in which he stated that the drug was an alterative, and while referring to the fact that the exact conditions produced by it were not known he called attention to the necessity of carefully watching for symptoms of arsenical poisoning when the treatment is long continued. The drug is an improver of nutrition and it would seem to be a direct stimulant to nutrition, by diminishing or checking the tissue change and indirectly it improves the nutrition by increasing the recuperative powers, and it would seem that some individuals need arsenic to create a normal neuromuscular vigor, just as the syphilitic needs the iodides and the chlorotic iron. He referred to the fact that Gautier, of Paris, had discovered arsenic in the human body and also that M. Berhand, of Paris, had discovered it in hens' eggs, which would indicate the necessity for supplying it when absent. In regard to its employment in tuberculosis, he acknoweldged a hesitancy in its use on account of the likelihood of deranging the mucosa. The natural arsenical waters of Levico are valuable in some cases of this disease. He stated that his experience with the drug in the treatment of chorea extended to about twenty cases, in all but two of which the administration in the form of Fowler's solution in gradually ascending doses, in conjunction with dietetic, hygienic and psychic measures was satisfactory. He remarked that in St. Vitus' Dance, the drug seemed to be almost a specific, and believed it was best administered by beginning with about three drops, and increasing about two or three drops each successive day. He referred to the work of Rope, Woxham and others, the latter of whom recommends the hypodermatic use of the arsenite of soda, beginning with one-tenth grain doses and rapidly increasing to one-half or two-thirds grain doses. He considered the drug of great importance in the treatment of chronic malaria, anemias, cachexias, in the recurrent estivo-autumnal malarial fevers, and in intermittent malarial neuralgias. He reported a case of recurrent type, each spring and fall, in which he had secured particularly good results. He also stated that personally he had suffered from tertian malarial fever each spring and autumn until he took the drug off and on for three months, continuing until the first symptoms of gastro-intestinal irritability manifested themselves, since which time (fourteen years ago) he has not had any symptoms of the disease. In certain cases of pernicious anemia and arthritis deformans, he believed that it had a beneficial effect. In scrofulous conditions, glandular enlargement and bronchial catarrhs, it is always of value.

Digitalis.—A paper on this drug was read by Dr. William Egbert Robertson, in which he reviewed the various pharmaceutical preparations and their actions and believed the preparation made from Allen's leaves to be the most valuable. In regard to digitoxin the chemistry is very incomplete; it seems to have some effect in relieving the blood pressure, but during its administration the volume of urine and pulse rate should be noted from time to time in order to avoid the possibility of cumulative action. He referred to the case of a young man, twenty-five years of age, who had suffered from a parenchymatous Bright's disease. He was edematous and constipated, but there were no symptoms of uremia. He was given the infusion for several days, without any apparent effect. One day he got up, walked to the clinic, and before his case could be attended to, he vomited rapidly and showed manifestations of the toxic effect of the cumulative poisoning. Dr. Roberston preferred the infusion, and stated that he had not secured nearly so good results by using the digitalin as by using the digitalis in two-dram doses every three hours. The drug is employed for its effect upon the circulation and especially after loss of cardiac power; in cases of weakness without valvular disease, in simple dilatation; and all forms of valvular heart disease, especially mitral disease, it is of value. In simple hypertrophy, aneurism and a high degree of arterial sclerosis, it is contraindicated.

The discussion was opened by Dr. Hobart A. Hare, who referred to the value of $^1/_{200}$ grain doses of biniodide of mercury, in a watery solution every six to eight hours for the purpose of aborting acute tonsillitis. He believed that all preparations of mercury were contraindicated in cases of tuberculosis and that one of the chief reasons for the value of calomel in cases of intestinal disturbance was on account of its power of eliminating intestinal impurities. He believed arsenic to be of value in tuberculosis and anemia, as are also small doses of arsenate of copper in some cases of the latter disease, when iron does not seem to do so well. In regard to digitalis, he believed chemically and physiologically tested and carefully prepared fluid extract was the best, and recommended that the physician have it put up regularly, of a known strength, at certain reliable pharmacists. He felt that many cases of untoward results in the administration of digitalis were due to the fact that the physician was not thoroughly familiar with the strength. He also referred to the danger of the cumulative effect of digitalis, caused by the non-absorption of the drug at the time of its administration, believing that when the required dose is ascertained, the patient should be kept there, instead of increasing it. Absorption is also aided by the conjoint administration of mild doses of Hoffman's anodyne.

Dr. Ludwig Loeb referred to the value of calomel in conjunction with some active diuretic in the treatment of dropsical conditions. In the administration of mercury in tertiary syphilis and other diseases, it is very apt to produce mercurialism, which should be carefully watched for and the drug discontinued, so soon as these symptoms appear. Arsenic, he remarked, was particularly effective in diseases of the glandular structures. It is also of value in skin diseases, such as psoriasis and lupus, and in anemia. Digitalis, he did not view as a true diuretic, but rather as a heart tonic, acting by stimulation and thus increasing the circulation and secretion of urine.

Dr. Walter I. Pennock referred to the difference in strength of the various drugs put up by the different houses, and urged the necessity for uniformity in this direction. In regard to calomel he believed as good results were secured by fractional doses as the administration of a single large dose. He stated that he had never seen a case of the cumulative action of digitalis, and believed the best results would be produced by use of the fluid extract, and after getting up to a sufficient dose by dropping back again to about half that amount, and again gradually increasing.

Dr. William L. Pepper stated that he had treated 13 cases of diphtheria with biniodide of mercury in one house, all of which recovered.

Dr. I. Newton Snively, in closing, stated that he believed the value of any drug depended upon the amount which was absorbed. In the administration of calomel, he recommended one-tenth of a grain every hour, combined with bicarbonate of soda and thoroughly triturated, and believed that the best results were secured with fractional doses of this drug.

Dr. Howard S. Anders, in closing, believed arsenic to be of value in cases of tuberculosis when fever was absent, and urged the necessity of carefully prepared preparation of digitalis of uniform strength.

Dr. William Egbert Robertson, in closing, stated that he considered the effect of the fluid extract of digitalis upon the stomach less irritating than that of the other preparations. He believed that mercury may produce nephritis, to which Kauffman and other German observers have called attention.

BOOK REVIEWS.

The Medical Epitome Series. Microscopy and Bacteriology. A Manual for Students and Practitioners. By P. E. Archinard, A.M., M.D., Demonstrator of Microscopy and Bacteriology, Tulane University of Louisiana, Medical Department. Series edited by V. C. Pedersen, A.M., M.D., Instructor in Surgery and Assistant Anesthetist at the New York Polyclinic Medical School and Hospital, etc. Illustrated. Lea Bros. & Co., Philadelphia and New York.

This excellent little volume of the Medical Epitome Series affords a concise and clear presentation of the essentials of bacteriology and bacteriological technic without neglecting the more recent achievements of this science such as the Roux-Nocard method of culture. Pathogenic microorganisms other than bacteria, such as streptothrix, plasmodium and ameba are discussed in separate chapters and the final pages are devoted to the bacteriological examination of water, air and soil. Though the book contains but 210 pages it will be found a remarkably complete guide for the laboratory, and a series of questions appended to each chapter will make it handy for the student. Excellent colored illustrations abound throughout the volume.

Hand Atlas of Human Anatomy. By Werner Spalteholz and W. His. Translated by Lewellys F. Barker. 3 Volumes. S. Hirzel, Leipzig. G. E. Stechert, New York.

It has rarely been accorded to the reviewer to have the pleasure of looking over so attractive a work as that under consideration. From the illustrative as well as the scientific side we think this one of the best examples of anatomy making with which we are acquainted.

The work is termed a hand atlas. It is more than this. It almost brings the cadaver to the study table, so realistic are the illustrations and so sharp and vivid the pictures left. With this work the student and the older practitioner as well can rehearse their anatomy without the inconvenience and discomforts of the dissecting room. This feature alone commends it to all who would keep a better grip on their anatomical knowledge, al-

though we hasten to add it can never take the place of the section room for the beginner, notwithstanding its superlative qualities.

But further and behind this excellent illustrative feature, there are more philosophical pedagogic principles involved that render the book, we think, unique. Nowhere, for instance, apart from special monographs, are the intricate anatomical relations of the nervous system set forth as here. The conception of the whole organ with its coordinate relations to other parts of the body is most felicitously set forth.

We can only hope that such a work will meet with a wide recognition that may cheer the economic instincts of publishers and prove the forerunner of a group of text-books on anatomy of similar stamp.

Elementary Bacteriology. By M. L. Dhingra, M.D., C.M.Edin., Diplomate in State Medicine, University of Cambridge, Member of Sanitary Institute, etc. With colored frontispiece and illustrations in the text. Longmans, Green & Co., London, New York and Bombay.

An attempt has been made in this volume to represent in a concise manner the fundamental principles of Bacteriology. The material has been selected and arranged so as to meet the ordinary requirements of Indian students and practitioners, so that typhoid, dysentery, plague, cholera and malaria are treated rather in detail for so small a book. The practical part of the subject is discussed very briefly in a short appendix. The text is interesting and thoroughly up to date.

A Manual of Bacteriology. By Herbert U. Williams, M.D., Professor of Pathology and Bacteriology, Medical Department, University of Buffalo. With ninety-nine illustrations. Third Edition, Revised and Enlarged. P. Blakiston's Son & Co., Philadelphia.

This book is sufficiently long before the profession to demand no more than a passing notice. The plan used in the preceding editions has been followed in the preparation of the present one; the only departures being the insertion of a short, historical sketch and the freer use of references of original articles and reviews. In the author's own words the purpose of the book is to give in the smallest possible space the facts which a physician must know with some of those which it is desirable that he should know and a little of that which he may learn if his needs or inclinations lead him to go further. Much time has been spent on the index, so as to make the contents quickly accessible.

Bacteria, Yeasts, and Molds in the Home. By H. W. Conn, Ph.D., Professor of Biology, Wesleyan University. 293 pages. Illustrated. Ginn & Company, New York.

In preparing this work Prof. Conn has done a real service for all who are interested in household economics, and those who are not thus interested would do well to spend a couple of hours in its perusal. The book is just what it aims to be, a practical and popular epitome of the newer conceptions in bacteriology, in so far as they directly affect the life and well-being of the home. Of especial interest is the chapter on Food Preservatives, which touches on the much discussed question as to the harmfulness of the indiscriminate use of such substances as borax, formalin, salicylic acid, etc. Prof. Conn's conclusions are sound and wholesome, and as such are valuable data on the subject. There are chapters on the care of the sick room, disinfection, infection and immunity, and an appendix describing some simple experiments for those who can fit up inexpensive apparatus. The book is especially valuable to those who are taking up the modern methods of preparing food in our various cooking schools, because it has a truly scientific author who can back up what he says by actual demonstration.

Anatomy Applied to Medicine and Surgery. By D. E. Mundell, B.A., M.D., Professor of Anatomy, Queen's University, Canada. 492 pages. British Whig, Kingston.

We are sorry not to speak more favorably of a work whose author is evidently so well intentioned; for the poor impression which the volume makes on one is probably due to its mechanical rather than to its literary execution. But upon the first page is an inter-leaf with a list of 32 errata which in these days of scientific accuracy among publishers is somewhat disquieting. Then the paper is of an inferior quality and shows blots and blurs of ink in many places which spoil the book's appearance as a keepsake. Upon the whole, however, the volume is rather complete for its size. Each chapter is prefaced by a résumé of the anatomy of the part in question with its relations, landmarks and some account of the diseases to which it is subject, with brief mention of the simpler operations likely to come under the care of the general surgeon. The book just falls short of being indispensable, as it is, there are doubtless many who will find it useful in refreshing their minds when the several exhaustive works in this field are not for the time being available.

BOOKS RECEIVED.

The Medical News *acknowledges the receipt of the following new publications. Reviews of those possessing special interest for the readers of the* Medical News *will shortly appear.*

Howe's Handbook of Parliamentary Usage. Hinds & Noble, New York.

Précis d'Urologie Clinique. By Drs. A. Letienne et J. Masselin. 8vo, 466 pages. Illustrated. C. Naud, Paris.

A Manual of Medicine. By Dr. W. H. Allchin. Volume 5. 8vo, 687 pages. Illustrated. The Macmillan Co., New York.

The Eye; Its Refraction and Diseases. By Dr. E. E. Gibbons. 8vo, 472 pages. Illustrated. The Macmillan Co., New York.

Laboratory Work in Physiological Chemistry. By H. C. Jackson, Ph.D. Second edition. 8vo, 148 pages. John Wiley & Sons, New York.

Complete Medical Formulary. By Dr. J. C. Wilson. Third revised edition. 264 pages. J. B. Lippincott Co., Philadelphia and New York.

Ophthalmic Science and Practice. By Dr. H. E. Juler. Third edition. 8vo, 733 pages. Illustrated. Lea Brothers & Co., New York and Philadelphia.

Hand Atlas of Human Anatomy. By Dr. W. Spalteholz. Translated by Dr. L. F. Barker. Three volumes. 8vo, 872 pages. Illustrated. G. E. Stechert, New York.

Diseases of the Nervous System. By Dr. H. Oppenheim. Translated by E. E. Mayer. Second American edition. 8vo, 953 pages. Illustrated. J. B. Lippincott Co., Philadelphia and London.

Text-Book of Legal Medicine and Toxicology. By Drs. Frederick Peterson and Walter S. Haines. Volume 2. 8vo, 825 pages. Illustrated. W. B. Saunders & Co., New York, Philadelphia and London.

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ORIGINAL ARTICLES.

PNEUMATIC TOURNIQUETS: WITH ESPECIAL REFERENCE TO THEIR USE IN CRANIOTOMIES.

BY HARVEY CUSHING, M.D.,

OF BALTIMORE;

ASSOCIATE PROFESSOR OF SURGERY, THE JOHNS HOPKINS UNIVERSITY.

SURGEONS and neurologists alike are familiar with the postoperative palsies of the extremities consequent upon the too energetic and prolonged application of an elastic tourniquet. Out of a considerable number of pressure paralyses, which have come under the writer's observation during the past two years, eight of them have thus originated. The greater number of these were of the brachial type, the tourniquet having been employed to render bloodless the field at the elbow usually for resections of the joint. A thin, flabby arm, especially in these cases of joint disease and in spite of all precautions, lends itself readily to such an injury as the poorly protected nerves are easily compressed against the hard shaft of the humerus. The skilful application of the old type of rubber tourniquet, varying it for the individual so that it exerts a compression just sufficient to shut off the arterial supply and yet not enough to harm the nerve trunks, is an art rarely acquired even by an adept hospital orderly, who may have had years of experience.

There remain other objections to its employment. One of these concerns the technic of the operation. The tourniquet usually occupies a position on the borderline of the aseptic field, and when once applied must remain so until the completion of the operation. If once relaxed, and in certain procedures, in amputations or plastic operations on aneurismal sacs for example this may be necessary in order to see whether there is a continuance of any arterial bleeding, it is most difficult to readjust the tourniquet again, should this be desirable, without dislocating all of the clean surroundings, towels, etc., at the wound. A still further drawback from an elastic band, when tightly applied, is the ensuing vasomotor palsy, evidenced by the flushing of the extremity peripheral to the site of application. In a major amputation this produces the "wet stump" oftentimes so annoying to an operator inasmuch as it necessitates drainage which otherwise might have been avoided.

Pain is another objection. In many operative procedures on the extremities, preferably carried out under local anesthesia, the temporary cessation of the local circulation is of great assistance. Patients, however, can endure the discomfort of an elastic tourniquet for a very brief period. It is furthermore a common surgical practice, and one, I think, of questionable merit, to apply an elastic ligature, when necessary to control hemorrhage, in cases of traumatic lacerations of the extremities and to wait until the "shock" from the original traumatism wears away. Such a practice, from afferent impulses of pain due to the tourniquet alone, may add not a little to the already existing vascular depression.

Thus the possibility of paralysis, the difficulties of observing the best technic during the application, removal and especially of reapplication, and the pain when no general anesthetic is administered are all familiar drawbacks to the common form of elastic tourniquet. I think they may be avoided in large measure by the use of tourniquets of another sort.

The suggestion of an inflatable tourniquet doubtless originated in the use of the distensible armlet of the Riva-Rocci blood-pressure apparatus. On one or two occasions I had utilized the apparatus itself as a means of shutting off the circulation during cocaine operations on the hand, by holding the pressure slightly above that of the registered systolic arterial pressure. Objections are self-evident. Although the pressure of the armlet is relatively painless, its slow distention by shutting off the veins before the arteries, causes such an engorgement as to render a clean dissection most difficult. Consequently a similar armlet, though broader, of less distensible rubber and of such quality that it would stand boiling, was constructed, and by connecting it with a bicycle pump of sufficient size one or two quick strokes of the piston sufficed to fill it. Such an arrangement I have made use of many times for cocaine operations on the extremities with the greatest satisfaction. The tourniquet may be adjusted but not blown up until the moment of beginning the operation, and by palpating a peripheral artery one can tell easily when a sufficient degree of inflation has been reached.* When operating on minor cases without an assistant I have used a small bicycle foot-pump, the tourniquet either being adjusted well above the operative field before "cleaning up" or, having been boiled, placed around the member within the aseptic field just before operating. In similar fashion a larger and stronger form of cylinder than those which I have had constructed would answer for use on a muscular thigh or leg.

There is a further and a therapeutic use to which this form of peripheral construction could well be put though I have had little personal experience with this particular variety of tourni-

* It would be a refinement, of course, to insert a manometer in the course of the tube connecting tourniquet and pump, and, after measuring the tension necessary to obliterate the systolic pressure, to carry the pressure in the tourniquet slightly above this point. In a large operating room this could be conveniently and accurately done by having a tank of compressed air by which the tension could be instantly carried to the required number of millimeters of mercury.

quet therapy. Many observations, chiefly by Bier in Griefswald,* have been made to show the healing effect on chronic processes such as joint tuberculosis or the effect in the production of callus and new bone formation in pseudarthroses, etc., which is brought about by the hyperemia that follows a prolonged period of venous congestion ("Biersche Stauung") artificially produced by a loosely wrapped rubber bandage. It would seem that an inflatable tourniquet would in cases of this kind be much more easily applied, less uncomfortable for the patient and much more exact, since it is desirable to accurately regulate the degree of pressure at a certain point between venous and arterial tension.

It is, however, with this form of constriction as an operative rather than as a therapeutic aid that I have had most experience during the past two years; and, above all, in exploratory craniotomies has it been chiefly put to the test.

Since Wagner performed the great service for surgery and neurology of introducing osteoplastic resections of the skull, most operators, who have had frequent occasion to explore the cranial chamber by this method, have learned the value of a tourniquet placed about the fronto-occipital circumference. The bleeding from the long curved incision through the scalp, when this precaution is not taken, is not only the source of annoying delay before it can be sufficiently controlled, but also in the effort to secure the chief vessels there is considerable risk of partially stripping away from the bone the soft parts on which it depends for its subsequent viability. Later, when the bone flap has been elevated, the weight of pendant hemostatic forceps is especially liable to bring this about.

The method commonly employed of encircling the head with a piece of strong rubber tubing in order to control the vessels of the scalp is illustrated by a cut in Kocher's Operationslehre.† An elastic band of this sort may be stripped about the head from occipital base to supraorbital region where it can be knotted or held by a powerful clamp. It requires much practice and skill to properly apply such a tourniquet, and especially in children it is difficult to keep the band in its desired position and to prevent its rolling down over the orbits. In one of my patients, furthermore, it produced a most trying postoperative pressure neuritis of both supraorbitals and one suboccipital nerve after which I permanently abandoned its use.

Owing to the present limitations of our powers of cerebral localization the majority of cases, in which the skull is opened for exploratory purposes for which a wide osteoplastic flap is suitable, possess lesions which are situated well above the level girdled by a cranial tourniquet.‡ As a matter of fact the entire surface of the hemisphere with the exception of the lower part of the frontal and temporal lobe may be exposed.

During the past year and since I have been using a tourniquet of this pattern, eighteen of my series of craniotomies have been in a situation suitable to its use. It may in general terms be said that a large area of resection is as easy (if not easier) to make and heals as rapidly as a small one. The majority of these cases, needless to say, call for an exposure of the pre- or postcentral areas and it is far more simple with a large field of the hemisphere exposed to recognize the central fissure (Rolando) or to pick out with an electrode the motor strip anterior to it than to go through the usual more or less uncertain preliminary measurements and after determining on the scalp the probable situation of an underlying area to attempt its exposure through a small opening. The latter is the common practice. With any tourniquet the chief objection to a large incision, hemorrhage, is removed. The inflatable form, however, has proved so serviceable and personally I have become so dependent upon it that I unhesitatingly recommend it or a similar device to others.

Every surgeon has, of course, his more or less individual method of meeting the difficulties of the usual cranial resections. An osteoplastic opening may be made in the skull cap in various ways, any one of which with sufficient practice may suffice for its end. The trephine, burr, saws of one sort or another, mallet and chisel, the Sudek or the Stelwagon devices, the De Vilbiss or Dahlgren forceps are but a few of them. What may serve one is awkward in the hands of another. All possess advantages and disadvantages. Personally for an osteoplastic resection I use a combined method which has proved so uniformly serviceable that I venture to describe the essential points of the technic. Others doubtless may use quite different methods and ones which are better adapted for their personal needs.

After preparing the patient's head a large square of gauze, wet with bichloride solution, is thrown well over it like a hood. Over this is slipped the tourniquet, which with its connecting tube has been boiled so that it can be handled and adjusted by the operator or assistant. It should fit the head snugly and lie flat against it (Fig. 1). In order to prevent any possible rolling of the tourniquet after inflation, should the shape of the head be poorly adapted to retaining it in place, the edge of the gauze hood may be drawn up over it, fore and aft, and pinned; or else, as I have occasionally done, a longitudinal tape may be used for this same purpose as shown in the accompanying photograph (Fig. 3). The tourniquet is sufficiently narrow (3 cm. on the flat) to lie, as stated above, well below the inferior areas of the motor zone. The tourniquet is then inflated and the shovel-shaped incision of whatever form desired made through gauze hood and scalp to the underlying bone. A momentary bleeding may ensue as the imprisoned vessels of

* August Bier, Hyperämie als Heilmittel. Leipzig, F. C. W. Vogel, 1903, p. 51, "Passive Hyperämie der Glieder durch eine Stauungsbinde."

† Vierte Auflage, 1902, p. 93.

‡ Those who choose to reflect a bone flap in operations on the Gasserian ganglion by the Hartley-Krause method, will, of course, find a tourniquet, inapplicable as it lies across the lower part of the temporal fossa.

the scalp empty themselves. It is only exceptionally necessary to clamp any bleeding points and then only on the concave side of the incision, where some of the veins may have diploetic communications. The convex side, which is the more important, remains dry.

Two openings (in a very large resection three

Fig. 1.

Gauze cap with tourniquet applied before inflation.

may be necessary) are then made through the skull at the angles where the superior or longitudinal portion of the incision joins the vertical sides. A small area of the skull is exposed for this purpose by retracting away the scalp on the concave edge of the incision. The openings are made preferably with a hand trephine of bevel

Fig. 2.

Bone flap elevated after inflation of tourniquet. Dura exposed, showing extradural clot.

pattern which has cutting ridges on the beveled surface. It is well to have the trephine of moderately large size (2 to 3 cm. in diameter) as any unusual amount of hemorrhage from the diploetic sinuses that may be encountered is better controlled through a large opening, or one which may be quickly enlarged if necessary by Rongeur forceps, than through the small perforations usually made. Occasionally in long standing cases of increased intracranial tension, from tumors, etc., the diploetic sinuses may be increased to twice their normal caliber, and owing to the existing stasis their vascular tension may be greatly raised.* A very satisfactory way of controlling bleeding from these diploetic sinuses is to fill the teeth on the bevel of the trephine with bone wax, which, by the rotary motion of the instrument, becomes squeezed into the openings and thus controls the bleeding perfectly. This has been learned from experimental work on dogs, for in these animals peculiar large and symmetrically placed diploetic vessels are normally present.†

Starting from these two trephine openings the lateral edges of the bone flap are then cut in a downward direction with forceps of the De Vil-

Fig. 3.

Showing pump, connecting tube and inflated tourniquet in position; also the longitudinal tape which prevents rolling of the tourniquet after distention in those cases in which the configuration of the head is badly adapted for holding it securely in position.

biss or Dahlgren pattern which answer the purpose well since the skull becomes thinner as one approaches the base of the flap. These linear cuts in the bone should be made parallel to but slightly inside of the lateral edge of the skin incision for reasons to be explained.

A long slightly curved blunt dissector is then passed between the two trephine openings, the dura being carefully separated from the skull as the instrument advances. Alongside this as a guide is passed the end of a Gigli wire saw and the longitudinal or superior side of the bone

* It is needless to say here that for this same reason any possible pressure on the neck from position of the head, towels, etc., which can in any way press even lightly upon the jugular vessels should, in intracranial work, be studiously avoided.

† They have been described in the Mitteilungen aus den Grenzgebieten d. Med. u. Chir., Bd. IX, 1902, p. 780.

quickly sawed through on a distinct bevel, the original guide meanwhile remaining in place to protect the dura by holding it away from the wire saw. The flap is then carefully elevated and broken through at its base (Fig. 2).

This entire procedure I have carried out in young adults in seven minutes. Some skulls, especially those of the negro, may require more than double this time. Speed, however, is no criterion of the desirability of a method. Those who are accustomed to follow the changes of blood pressure during critical operative procedures are well aware that rapidity, provided it is gained by the sacrifice of blood, is the least desirable of qualities.

Nothing need be said here of the means of controlling hemorrhage during the further course of an exploration save that in cases of extirpation it is well even at the expense of time to doubly ligate with delicate silk strands, passed through the brain substance with fine curved needles, all the surface vessels of any size which radiate from the area to be removed. The incision through the cortical substance made between the double ligatures thus placed, may be quite dry and what little bleeding may come from the base of the excavation is usually perfectly controlled by a few moments gentle pressure with dry sterile absorbent cotton. Dry gauze is very destructive to raw cerebral tissue. A special technic is required to prevent bleeding from the communications with the longitudinal sinus in case the exploration must pass across the median line and more particularly if it is desired to expose the leg area of the motor cortex, for it lies almost entirely under the Lacunæ laterales of the sinus into which project the Pacchionian bodies. In man there is no more difficult part of the cortex to expose than this portion of the precentral sulcus. This is, however, "another story."

On replacing the bone flap, the importance of the oblique shelf of bone made by the Gigli saw is apparent for without this the desired amount of pressure subsequently to be put upon the dressings could not be exerted without driving in the resected island of bone. Ordinarily no ligatures whatever are placed in the scalp but the edges of the incision are approximated with painstaking accuracy. For this purpose fine interrupted black silk sutures and intestinal needles are used. In this way by an exact and snug coaptation of the edges and by the slight compression of the dressing over the line of incision thus united, against the solid underlying bone, the divided vessels of the incision may be controlled. It will be remembered that the bony part of the flap is cut concentric with but a somewhat smaller diameter than the scalp incision. The local portion of the dressing over the wound is applied before the tourniquet is allowed to collapse and is removed from the head.

Though rarely, drainage may occasionally be necessary. When so, it is inadvisable to drain directly through the incision. A better practice is to lead the strip of gauze or protective or a silver tube such as Kocher employs through a small opening made 2 or 3 cm. outside of the original incision. It is perhaps well to err on the side of drainage rather than otherwise, though in the majority of instances I find it unnecessary. Once only in a long series of cases have I regretted it for in this case the bone flap became elevated by an underlying clot and the wound had to be reopened.

In cases of exploration for cerebral tumors, provided the growth is not found or proves inaccessible, I unhesitatingly remove the bone portion of the flap extensive though it be, make no effort to close the dura over the bulging brain, and carefully unite the scalp as described above. It is in these palliative operations that the importance of an accurate approximation is most evident since with early and perfect healing a large hernia may develop without separating the skin incision. By taking these precautions I have never yet seen the lamentable sequence of a fungus cerebri develop. In one case only in my series has this occurred, and it might have been avoided had I at the time had a wider experience. The case was one in which I successfully extirpated a solitary tubercle of the cerebellum, but instead of closing the wound or of draining over the edge of bone from the outside of my original incision, I drained directly into the cavity left by the extirpation through the latter. In the course of a few days a hernia developed with a fungus cerebri, which protruded through the opening where the drain had been inserted, and in spite of all precautions infection ultimately led to the death of the patient some three months after the operation.

It is customary to make the first dressing in the ordinary run of cases on the second day after the operation, at which time the fine sutures are all removed from the line of incision. The delicate scar receives its subsequent support by placing over it long strips of gauze saturated in collodion. No further dressings are necessary, and this hard protective covering is then left untouched for two weeks or more. No cases, when handled properly, are technically so simple, nor have such an uneventful convalescence as these very cases of exploratory craniotomy—for unlike similar abdominal explorations a period of recumbency after the operation is not essential.

Not the least factor in simplifying the procedure is the use of the inflatable tourniquet, and the belief that such an apparatus has heretofore not been used is the chief reason for making this communication.

The Etiological Relation Between Trauma and Tabes.—In the strictest sense, according to A. Schittenhelm (Deut. Zeitsch. f. Nervenheilk., Nov. 10, 1903) there is no such condition as traumatic tabes, but rather in all those cases in which tabes follows a traumatism, the latter is to be regarded as an accessory or exciting cause, leading to a predisposition, or in the presence of an actual predisposition to tabes, tending to enkindle it or serving to unmask a latent tabes and to accelerate its progress.

A CASE OF STRANGULATED INGUINAL HERNIA: DEATH FROM FECAL DROWNING DURING ETHERIZATION.

BY EDWARD H. GOODMAN, M.D.,
OF PHILADELPHIA.

Patient was a white male, sixty-five years old and was admitted to the men's surgical ward of the Presbyterian Hospital during the service of Dr. Henry R. Wharton, with the following history:

Patient had been suffering with a large inguinal (scrotal) hernia for a number of years, but had received no treatment for the condition, apart from wearing a truss at rare intervals, and then for a short time only. Lately the hernia had grown larger, but not until two days ago had it given him any inconvenience apart from that caused by the size. Two days ago (June 10, 1903) he began to feel some discomfort in the inguinal region, was nauseated and vomited at intervals. His family were unable to state whether the vomitus was fecal in character, but said it was a "dark-looking fluid." Constipation was not absolute at first but became so rapidly, and his general symptoms became so severe that he was removed to the hospital. While in the ward his vomiting was stercoraceous. The scrotum was distended enormously, being as large as, if not larger than, a football, and the penis was almost invisible, save for a slight wrinkling of the skin indicating the prepuce. He was admitted to the hospital 12:45 P.M., June 12, 1903. The condition was diagnosed as strangulated inguinal hernia, and the patient was prepared for immediate operation. On admission his temperature was 97° F., pulse 108, and respirations 24.

Before ether was administered, examination of the patient showed him to be in poor condition; his pulse was 100 per minute, not strong and rather irregular and his respirations were 36. Face was somewhat cyanosed, lips blue, and an anxious expression about the eyes. The capillaries of the face were markedly dilated. He was normal so far as murmurs were concerned; lungs somewhat emphysematous.

Ether was administered (slowly) on Allis' inhaler and for about three or four minutes, patient took the anesthetic well. Color remained about the same, there was no attempt at vomiting, no struggling, and the pulse, while of fair volume and strength, became more rapid. After about five minutes from the time the anesthetic was commenced the patient became more cyanosed and asked to be allowed to sit up, which request was granted. Consciousness had not been affected by the ether up to this point, pupillary reflexes were present, and rigidity and voluntary movements still remained.

Patient's condition became worse, and oxygen was administered; pulse became weaker and more rapid, and patient's face was a deep blue. The head was lowered and artificial respiration was resorted to. At the first pressure on the chest, fecal matter poured from the mouth and nose and continued to do so as long as artificial respiration was practised. Tracheotomy was performed, and the fecal matter poured from the larynx filling the tracheotomy tube.

The heart was audible for about ten minutes after the patient's condition became critical and artificial respiration was continued for about twenty-five minutes or from five to ten minutes after the heart became inaudible to the ear applied to the chest wall. The patient was pronounced dead and all efforts to resuscitate him were discontinued thirty minutes from the time the anesthetic was begun. Total amount of ether used was between an ounce and one and a half ounces.

Patient had had several attacks of vomiting in the morning just prior to being sent to the operating room, but at no time since he came under the writer's observation had there been any attempt at emesis, and not until artificial respirations had been instituted did fecal matter become visible.

No post-mortem examination was made and it is presumable, and indeed almost certain, that during etherization reversed peristalsis had occurred, the fecal matter had poured into the trachea, then into the lungs and the patient had literally drowned in his own excrement.

This case has points of resemblance in common with the interesting cases reported lately by Dr. Andrews, of Chicago. There is no doubt in my mind but that the ether had benumbed the sensibility of the throat, and the acrid fecal matter had not excited any attempts at expulsion by vomiting, but had poured from the pharynx into the trachea in a rapid and uncontrollable lethal torrent. The fearful suddenness with which this death-dealing Niagara acts, makes it impossible to hope for effect from any treatment, as is shown by a study of this and Dr. Andrews' cases.

The suggestion of Dr. Andrews concerning the use of local anesthesia in intestinal obstruction operations is a good one, and cannot fail of appreciation by those who have been so unfortunate as to have been eye-witnesses to a case such as the above.

Dr. Andrews in his summary remarks that "we have no evidence that it (flooding of the air passages by fecal vomit) can occur during consciousness even *in extremis*."

The case just reported presents this noteworthy peculiarity, that the patient was apparently fully conscious and was able to articulate intelligibly and intelligently, but yet gave no sign of impending death from fecal drowning.

The Destruction of Sugar in the Organism.—That all the tissues of the body have the power of splitting up the sugar-molecule was discovered by J. Arnheim and A. Rosenbaum (Hoppe-Seyler's Zeitsch., Dec. 19, 1903). This power varies with the different tissues, and is greatest when the tissue of the pancreas is combined with another tissue. The means by which this process of glycolysis is brought about is not yet known.

A HISTORY OF SALIVA, ITS PHYSIOLOGY, CHEMISTRY AND PATHOLOGY.*

BY HAROLD M. HAYS, A.B.,
OF NEW YORK.

The action of saliva in health and disease is not a new subject. During all ages it has been more or less the object of contemplation and research, not because its study was more enticing than many others but because of the probability that its secretion was vital and necessary to the maintenance and welfare of the body.

At the time of Hippocrates, little was known about physiology. We read in his writings that the glands were spongy viscera, destined to secrete humidity to the surrounding parts.[1] But as the physicians of that time were given up to the speculations of transcendental philosophy and its application to life, there were various theories as to the source of the secretion of the saliva and its action. By many of the old philosophers and physicians, the salivary fluid was supposed to be excrementitious in its nature and the terms saliva and sputum were used synonymously. It was natural for them to suppose that the saliva had no other function.[2]

The contents of the saliva at that time, and for a great many years for that matter, were never determined by chemical means. As all glands were "destined to secrete humidity," the salivary glands followed the rule of all the others. However, it must be admitted that physical and speculative characteristics were given to it. It was thought to be composed solely of water with a little salt and spirit. Variations from these three proximal ingredients were given by many, as Koeperus, Neuter, Hoffman, Viridetus, Lentelus, et al. The speculative notions entertained by many of the older authors concerning the impregnation of saliva by animal spirits seemed to be due to the occasional occurrence in it of carbonic acid and atmospheric air which appeared to make it bubble and froth. The discordant opinions concerning its further composition were either the result of idle speculation or of the examination of the fluid having been made both in its morbid as well as in its healthy condition.[3]

The association of physiology, pathology and therapeutics, in ancient and medieval times was little known. Although saliva, as a physiological entity was of little consequence, the fluid (as in many parts of the world until recent times), was used as a therapeutic agent. There is little doubt, however, that whatever therapeutic value it had was in the efficacy of its arousing faith as to its healing properties.

As an external application, saliva has been universally in great repute for affections of the eyes. When Vespasian visited Alexandria, an inhabitant of the city besought him to spit upon his eyes for the restoration of his sight. We are told that the remedy was successful. In various affections of the eyelids, it was recommended by Vereducius.[4] To remove the pits of smallpox, its employment had been suggested by Doloeus.[5] To heal ulcers and cure warts, it had been recommended by Nuck. And, lastly, it had often been advised to add saliva to ointments to facilitate their absorption, for what purpose we know not.

As a bland and soothing agent, saliva has always been used. It seems to be the natural prevocative of man and animals to use it for emollient purposes. For example where the mucous membrane of the lips has become excoriated, it appears to have a soothing effect. In cuts, in the sting of bees, in the bites of poisonous insects or reptiles, saliva has often been applied to the injured part and has mitigated the intensity of the pain and soreness.*

One interesting incident in the supposed therapy of ancient times, has been handed down to us. In the old Grecian arena, at the Olympian games, etc., the saliva was often used to strengthen the fists of the pugilists. Either the man himself spat into his own hands or saliva was rubbed into them. It was thought at that time that there was a stimulating action of the saliva exercised over the part treated, and so the hands would become more limber and more impervious to injury. This ancient custom still exists among the fist-fighters of to-day. The young ruffian on the street corner who is about to enter into combat, considers it a natural thing to spit into his hands and "limber them up" before he enters into battle. It is but a good example of the process of evolution and the transmission of unconscious acts by heredity.

A true function of the value of saliva was not thought of up through the middle of the Dark Ages. Even Galen gave no anatomical description of the glands. He maintained that the saliva was transmitted to the mouth by particular *veins*. The idea was never suggested to him to attribute to these organs the special function of preparing a useful fluid. In fact, he considered the salivary glands as receptacles for an excrementitious humor of the emunctory vessels. The preparation of a fluid in these glands, was perhaps thought to be a secondary affair in the function of the gland.[1]

After the time of Galen, the same ideas held forth until the middle of the eighteenth century. Chemistry was then beginning to come to the foreground and many men spent much thought and time on the examination of the saliva as to its chemical constituents, its variations in health and disease and lastly as to its physiological importance. It was known, for example, as early as 1788, that if saliva be heated, it not uncommonly acquires an acidity in a few moments.[6] Berzelius, a Swedish chemist (1790), first discovered and described ptyalin, which at that time was not known as a specific enzyme and was never isolated, being considered as a portion of the albuminous product of the saliva. Trivaranus (Biologie

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* It has often been noted in laboratory experiments on dogs that the saliva which the dogs lick on their wounds often acts as a gelatinous covering, thus protecting the wound almost as well as if collodion had been put on. This fact will often obviate the necessity of putting on any bandage at all, especially if the wound is small.

565) first observed the blood-red color saliva acquires on the addition of a persalt of iron. He believed it to be produced by a constituent denominated by Winterl, "acide du sang" and which Porret afterward proved to be hydrosulphocyanic acid. The observations of Porret were subsequently confirmed by Gmelin and later by Ure. It was found that sulpho-cyanogen occurred in human saliva, in sheep, in some dogs and horses, chemically combined with potassium. The proportion varied, being augmented by local conditions, stimulation of the salivary glands, as in smoking, chewing, etc. It was also supposed to be increased by the internal use of prussic acid, salts of cyanogen and remarkably so by the use of sulphur.[2] It was discovered by Leuchs, about 1828, that saliva has the property of converting starch into sugar. After this, many experiments were made to substantiate the doctrines already brought forth and to observe the action of saliva on the stomach. Spallanzini and Reamur introduced food, previously deposited in perforated tubes into the stomachs of different animals; they found that when the food was moistened with saliva, it digested more quickly than when moistened with pure water.[7]

We thus see that with the steady advance of science up to the year 1842, the saliva was beginning to be appreciated as a separate and individual part of the human organism. Experiments were done to justify its digestive powers; its reaction was ascertained in various ways; its influence and its chemical constituents in disease, were tested and so its study grew steadily.

To sum up the main things that were thought about saliva in 1841, I shall quote the conclusions of Dr. Wright, published in the *Lancet* of that year: (1) Saliva has the power of modifying, and, to a certain extent, of digesting vegetable and animal substances. (2) It has a more powerful action on the vegetable than on the animal matter. (3) The healthy digestive action of saliva is always attended with the evolution of lactic acid. (4) Filtration or boiling, diminishes the digestive powers of the saliva but does not destroy them. (5) Exposure of the saliva to atmospheric air, for a moderate length of time, does not materially weaken its digestive powers; but they are enfeebled in the ratio of the putrescence of the fluid. (6) Oxygen gas assists the digestive action of the secretion, but is not essential to it. Carbonic acid gas impairs this action in a mild degree, and hydrogen and nitrogen gases weaken it very considerably. (7) *Acids and alkalis, added to saliva, diminish or destroy its digestive properties.* (8) The presence of saliva in the stomach is essential to healthy digestion. (9) The digestive action of saliva is not possessed in any efficient degree by animal mucus, acid, alkali or alkaline salts.

Physiology.—As in all secretions of the body, the experiments have been made both upon man and animals. The general tendency has been, not to find any new substances, but to study the variations in constituents and the variation in action of these constituents during the physiological life. Thus, for example, saliva has been studied under the action of alcohol, ether and other substances.[8] Again, the quantitative variations in alkalinity and digestive power have been studied.[9]

The real action may be divided into three classes: (1) Its action in mastication; (2) its action in deglutition; (3) its action in digestion.

The masticatory action of saliva is a simple physical process and probably was observed hundreds of years ago. The food seems to be lubricated, as it were, and thus is formed into boli, which can the more easily be chewed. A proof that the saliva is important in mastication is observed from the fact that saliva is more copious in those creatures whose food requires continued mastication. "In ruminating animals, accordingly, the salivary glands are numerous and of great size, while at the same time they are so situated that the play of the muscles in the act of rumination communicates to them a proportionate stimulus. In those again who do not masticate, but swallow their food entire, there is scarcely any salivary secretion, and the glands appropriated to it are very small." [10]

The deglutition action also is more or less physical and is designed to act upon those foodstuffs which in themselves contain little free water, to act as a lubricant. Thus, for example, it is found that an ordinary cracker can be swallowed with difficulty unless there is sufficient admixture of saliva to allow it to glide along the walls of the esophagus.

Naturally, it is now admitted that the principal action of saliva is its aid in digestion. But as late as 1840, the only way this was known was by the fact that when saliva was absent, there was a marked deterioration in nutrition and digestion. "Though I have been unable, from experimental inquiry, to discover in saliva any physiological activity, yet I have observed that its alteration or its absence is invariably characteristic of a depraved condition of the saliva; and, as I shall hereafter endeavor to prove, the various morbid states of this fluid being representative of disease in the system or in its secretion, the examination of the ptyalin may be advantageously suggested as an addition to our other means of diagnosis" [2] (Wright).

The digestive action of the saliva may be considered as (1) that in the buccal cavity, and (2) that in the stomach.

The action of saliva on starch was first discovered by Leuchs and afterward verified by Schwann. Leuchs digested in some acidulated saliva for twenty-four hours a certain quantity of boiled starch, then filtered the fluid, and found that iodine produced in it no change of color. Having neutralized it and evaporated it to dryness, he obtained from the residue, by means of alcohol, a considerable quantity of sugar which he recognized by its taste as well as by its property of fermenting yeast. The part of the residue which the alcohol did not take up, consisted of the salivary matter of the saliva, in part altered in

its properties, and of starch changed to a substance resembling gum, which with the iodine did not strike the blue color which characterizes starch.[7]

The action of saliva upon starchy products has been studied up to the present day. The principal action seems to be in changing the polysaccharide to a more soluble form as follows:

Starch
|
Soluble starch
/ ———maltose
Erythrodextrin
/ ———maltose
Achroodextrin
/ ———maltose
a. achroodextrin
b. achroodextrin.

But the amylolytic power of saliva is not constant. There are decided changes according to the time of day it is secreted, the character of the food eaten, whether disease is present or whether the patient is possessed of emotional disturbance as will be cited later on. Hofbrauer shows that there is a distinct fluctuation at various periods of the day. For example, the amylolytic power is greater before breakfast than after the morning meal.[11] This is confirmed by the observations of Chittenden and Richards.[9] "It would appear that saliva secreted after a period of glandular inactivity, as before breakfast, is ordinarily possessed of greater amylolytic power than the secretion obtained after eating. Before and after dinner, however, the difference in amylolytic power is less pronounced, a fact which might be expected of the short period of recuperation between the breakfast and dinner and because of the more or less constant stimulation of the salivary glands during the waking hours." These changes in digestive power seem to be due primarily to a greater intensity of the enzyme ptyalin.

The action of saliva is not especially manifest on forms of food other than starch but there is no doubt that other kinds of food alter its secretion and intensity. In this connection may be mentioned the intake of great quantities of food of any kind which need mastication, and the eating and drinking of stimulating articles of diet, such as pepper, salt, alcohol, gin, whisky, etc. All of these substances change the character of the saliva in alkalinity, amylolytic power and amount of solid matter.*

The action of saliva in the stomach is practically a minor one. That which is not combined with the starch enters the stomach in its own form and exercises its action principally by its alkalinity. At first it helps to neutralize some of the hydrochloric acid at meal time; and in the intervals, it acts as a stimulant to the mucous membrane of the stomach, the same as any alkaline substance will. There is no doubt, however, that there is a distinct relation between the secretion of saliva and the gastric digestion, probably due to some influence of the nervous mechanism because of the intimate relations between the two secretory centers in the medulla. "From a number of cases we see that a debilitated or depraved function of the stomach is apt to be associated with a defective action of the salivary glands."[3]

Among some observers, the quantity of alkalinity which the saliva gives to the gastric juice is of great consequence, probably because of the stimulation of the gastric cells. "The habit of smoking after a full meal is capable of excellent physiological significance. If a person spits much (as in smoking a pipe) the acidity of the stomach has not as great a chance to become neutralized. The alkaline saliva is wasted instead of serving a useful purpose. And, conversely, if a man sit down to a good cigar or pipe after dinner and swallow the saliva which the tobacco occasions, the stomach will find itself aided in its digestion and an equilibrium of digestion will be established. So, also, the indigestion consequent upon sleeping after dinner, or after a hearty supper, is chiefly owing to a diminished or suspended secretion of the saliva." *Cum grano salis!*

There is no doubt that there are baneful influences from too frequent or abundant spitting, partly due to the change in the stomach. Dyspepsia and all its concomitants are often the result. Dr. Wright says that he once spat 250 drams of saliva in one week, often having to spit right after dinner. In seven days, he lost eleven pounds and was much weakened and emaciated.[3] When any secretions are thus abnormally taken from the body, the like result follows.

As the ingestion of too little saliva into the stomach seems to have a deteriorating effect, so the swallowing of too great an amount will be a source of discomfort and uneasiness and cause a change in the gastric digestion. Too little saliva causes a bad effect *during* and *right after* meals; too great an amount exercises its effects *between* meals. In people who are habitually large eaters, the salivary secretion is generally very abundant. This is also observable in children and in healthy young adults. Such subjects are usually intolerant of hunger, and when fasting longer than common, are apt to suffer severely from nausea, flatulence and pain in the stomach. "An increased flow of saliva occurs always in long fasting, perhaps due to psychical or reflex influences. The desire for food being urgent, the salivary fluid is correspondingly increased, and of course the fluid is generally swallowed for want of something better. This at length becomes a source of uneasiness; some pain may be felt; there are flatulence, nausea and eructations. If food be not taken, the saliva is discharged in the clear limpid state in which it was swallowed. In such cases the appetite is often not fully restored except by the repose of the patient or by a stimulant. They are said to fast until they are sick." We seldom see this action in invalids where the secretions are not so active, nor do we find this in people who never have a strong sensation of hunger. Perhaps, if a person is going to take a walk

* An excellent table to illustrate this point may be found in the American Journal of Physiology, Vol. 1, page 475.

before breakfast, a little crust of bread will ward off the feeling of discomfort, because enough secretion is given to the stomach, whereas in fasting the saliva is often diminished. If we are to act on this same principle, we may thus account for the beneficial effects of smoking or chewing tobacco or the chewing of gum in allaying nausea and hunger.

The action of the nervous system upon the salivary secretion is most profound. But one is not prone to regard this in physiological states of the system. There seems to be no doubt that all the secretions of the body are more or less reflexly or directly governed by terminal end fibers in secretory cells. For example, in anxiety, in a fit of anger, in profound grief, in derangements of the nervous system in such diseases as locomotor ataxia and brain tumors, the secretions of the body are inhibited or augmented. The salivary secretion follows the general rule. A reflex augmentation may be incited by the sight or smell of food; a diminution may be brought about by fear or a cachetic state. By experiment, also, it has been shown that saliva exerts a marked influence *upon* the nervous system. It has been found in the injection of saliva into the arteries or veins of an animal, that spasms, convulsions and coma will often result. One might think that the direct cause of this was the same action as any foreign body would exert. But it was found that if other fluids were injected, no such results followed. This proves that the action of saliva on the central nervous system is one solely due to some inherent power of its own.

"The salivary secretion is immediately influenced by the operation of the mind; the sight of a delicious repast to a hungry man is not more effectual in promoting it, than is the operation of fear and anxiety in repressing it. Whence we are told to believe that the Hindoo ordeal by rice may have occasionally assisted in the ends of justice. This ordeal was conducted in the following manner: The persons suspected of any crime, being assembled in a ring, a certain portion of dried rice was given to each, which they were directed to chew for some moments, and then to turn it out of their mouths on the leaves or bark of a tree. Those who were capable of returning it in a bulky form were at once acquitted, while those from whose mouths it came out dry were pronounced guilty."

A medical man tells of a patient who was of a very nervous irritable temperament, who had the idea that she was the subject of enlarged liver; and, because of this, requested that she be given mercurial inunction in order to become salivated. As she could not take internal preparations, because of a disordered digestion, she was given a little common lard, darkened with charcoal, with which she very conscientiously anointed herself every night for about a week. At the end of that time she was as profusely salivated as if mercury had been given.*

Other examples of the action of the central nervous system on saliva are unnecessary. The purpose of this brief résumé, is but to recall the fact that the secretion of saliva is certainly a complex affair.

Physiological Chemistry.—The ordinary qualitative analysis of saliva may be found in any text-book. In simple terms it may be expressed thus:

Water 99.5 per cent.	Solids 0.5 per cent.
Organic.	Inorganic.
Mucin	Salts of Na, K, Mg, Ca.
Serum albumin	KSCn
Serum globulin	Traces of SO_4, etc.
Cells.	
Bacteria	
Spores	
Food débris.	

The quantitative composition certainly varies with individual observers and in individual subjects, according to the time of day the saliva is taken, the amount secreted, the food eaten, etc. The average amount calculated by Bidder and Schmidt is 1,500 grms.[3] for the twenty-four hours. The quantity of secretion may be equal in one hour to eight to fourteen times the weight of the glands, "and there is probably no gland in the entire body, as far as we know at present—the kidneys not excepted—whose ability of secretion under physiological conditions equals that of the salivary glands." [14] *

As was seen before, the amount of the saliva may be directly proportionate to its solid constituents or not. Saliva is always denser after a meal than during fasting and the old impression used to be that it was denser in the evening than in the earlier part of the day. This has been ably disproved by Chittenden and Richards.[9]

Aside from all this, the principal things of interest are the amylolytic power and the alkalinity of the saliva and whether the amylolytic power is increased or diminished in changes in alkalinity. We have already discussed the amylolytic power. Let us turn to its reaction.

Saliva is now known to be alkaline in reaction but it was not always thought to be so. Hoffman, years ago, thought it to be acid.[15] So also thought Viridetus, Lentilius, Heinsius and Dionysius. Others found it to be acid after fasting a certain length of time. The saliva of dogs is generally alkaline; oftentimes that of sheep and pigs is acid; but monkeys in confinement are more subject to it than other animals.[2]

It has several times been observed in dogs that the salivary secretion, which was previously strongly alkaline, became feebly alkaline, or neutral *post coitum*. The saliva of man and animals is generally increased in alkalinity by abstaining from sexual indulgence and conversely.[3]

The relation of amylolytic powers to akalinity is even now a subject of numerous investigations. According to Hammarsten, its action is greatest when neutral.[14] According to Chittenden and

* A number of similar actions of the mind are well illustrated in Hack Tuke's "Influence of the Mind over the Body."

* A comparative table of quantitative estimation of the saliva is well seen in Hammarsten's "Physiological Chemistry."

Smith, it is most active when feebly acid.[16] "Experiments on the diastatic action of the saliva under various conditions have recalled the fact that human mixed saliva in the presence of an equal volume of gastric juice, containing 0.5 per cent. hydrochloric acid, is capable of forming from a given quantity of starch a much larger amount of sugar than the same quantity of it alone can produce under a like degree of dilution, this being the more remarkable when it is remembered that the same percentage of acid itself greatly retards the diastatic action." [8] From a number of experiments by Chittenden and Richards, it is seen that the variations in amylolytic power are not dependent upon the amount of alkaline salts; but that, more likely, the alkaline salts are increased when there is a greater degree of amylolysis, showing a higher degree of concentration of the enzyme.

But the alkalinity varies at different periods of the day, under different conditions and with different individuals. It has been found to be fairly constant for a given period of the day in the same individual.[9] However, the variation in alkalinity is very slight, in any event. It is greater in the saliva after a night's rest. Before and after dinner, there is little difference.[9] It would seem from this that there was a constant equation between the alkalinity and the amylolysis, for they both seem to vary at the same time. Yet the reaction, probably is due more to the concentration of the fluid at these times, than anything else.

Pathology.—The physiology of saliva has received far more attention than its pathology. And rightly so. For in the various diseases of the human individual, where pathological states of the saliva have existed, there have been far better indications of the disease in the urine, in the facies of the patient and in other symptoms. Yet to the experimental pathologist and chemist, pathological states of the saliva have their interest; for it may be that there is an altered state in certain latent diseases where no other indication of the disease may be found In certain cases of jaundice for example, the saliva is colored; but so is the skin, the conjunctivæ, etc., so that diagnosis from this source is not needed. In a case of ascites reported, urea was found in the saliva, but urea was also found in the sweat and in the ascitic fluid when this was withdrawn; so this did not aid in diagnosis. So, in other diseases, foreign substances are found constituting a part of a general diathesis. However, there are some diseases where the quantity of the saliva and its quality are changed, as in the ptyalism of mercurial poisoning. And again, one can hardly think that if serious experimental research is adopted to determine the variations of the saliva in a number of cases, we shall not be able to diagnosticate several important diseases. Hoffman stated years ago that "the state and kind of most diseases can more readily be learnt from an inspection of the saliva than from an examination of the blood or urine." So believed Pausa, Poterus and Baglivi. Of course, in the light of our present knowledge concerning the value of the examination of the blood or urine, this is a little far-fetched but it indicates the point. "An intimate acquaintance with the pathology of saliva is an important item in the recognition or relief of disease; and, as will be anticipated, a restoration of the secretion to the normal state of purity, is a most efficient means of contributing to the healthiness and activity of the other functions which are necessary to the sustenance of animal life." [3]

Various pathological states of the salivary secretion have long been known to exist. *Deficiency* of the secretion is often associated with a debilitated or depraved function of the stomach and in wasting fevers; it may also be associated with obstruction to some of the salivary glands by calculi. As we have stated before, it may be secondary to an inhibitory action caused by grief, passion, fear or anxiety. *Excited* or *increased* salivation may be caused by a hyperacidity or superacidity of the gastric juice. This variation is often seen in cases of hypochondriacal and melancholic patients. Hoffman speaks of the abundant salivation of these patients.[17] M. Rayer relates the case of a hypochondrical female, twenty-four years old, who for many years was attacked at intervals of thirty, forty or fifty days, with a profuse salivation which lasted from thirty-six to forty-eight hours. The quantity of saliva discharged in twenty-four hours amounted to several pints.[18] Of the excited salivation of mercurial poisoning, we have already spoken.

Fatty saliva is often associated with a fat necrosis due to some obstruction to the circulation. *Sweet* saliva is an accompaniment of diabetes mellitus. *Albuminous* saliva is exceedingly uncommon. Dr. Cranston Chrales mentions that in a young man he found, just as Seminola had done, some albumin in the perspiration and saliva as well as in the urine.[19] *Bilious* saliva is found in severe cases of jaundice due to cholecystitis, cholelithiasis, or carcinoma of the head of the pancreas—in fact in any disease where jaundice is found elsewhere. Oftentimes the saliva is not colored, but on chemical examination is found to contain bile salts and bile acids. *Bloody* saliva is of no consequence, as it is usually due to hemorrhage in the nasopharynx or from an ulcer of the stomach where the other symptoms are of much more importance. The only point is to differentiate it from a hemoptysis.

Uric acid may be found in the saliva or a uric acid diathesis may alter the saliva. "When uric acid headache is present and the urine is scanty, the mouth also tends to become dry or sticky and the saliva is scanty; and when the headache has been cured by acids, opium, iodides or any of the drugs which clear uric acid out of the blood—not only is there a diuresis but the saliva also becomes relatively profuse." [20]

In a case of ascites, reported in the *Lancet* of 1841, urea was detected in the saliva. I shall quote the case at length, as it tends to demonstrate the excretory equilibrium which the body maintains.

Female, thirty-nine years old, regular and temperate in habits. Large abdomen; pain in kidneys; passed water without diffculty but the quantity seldom exceeded two to three ounces in twenty-four hours; secretion was pale and nearly colorless, but without a trace of albumin; spec. grav., 1.026; tongue furred; saliva acid; bowels constipated; appetite capricious. On tapping, three gallons of fluid were removed from the abdomen. About three weeks later, there was pain in the cheeks and profuse salivation. The saliva discharged was of a pale chocolate color, slightly ammoniacal in odor, strongly alkaline in reaction and, according to the patient, very disagreeable in taste. The quantity discharged in the first twelve hours amounted to 14½ ounces. A pint and a half of this was examined and was found to contain ten grains of urea. The next day the saliva amounted to twenty-three ounces and the next day to twenty-five. Then the amount gradually decreased down to the time of death. The kidneys were increasing in activity every day. "To the deposit of urea in the abdominal cavity in one instance and the discharge by the salivary glands in another, may be referred the patient's freedom from cerebral disturbance throughout the entire course of the disease. The evacuation of the abdominal cavity for a time suspended the function that was going on, but the kidneys still being incapable of their natural amount of exercise, an increased salivary discharge resulted, and in this vicarious action, urea again found an exit. As the kidneys resumed their activity, the morbid excitement of the salivary glands diminished."

This example, one of the clearest in the literature, shows one of nature's economical processes whereby one set of organs is brought into play for the elimination of foreign substances, when the proper organs are out of order.

Conclusion.—From a perusal of these pages, it will be seen that there are many interesting points in connection with saliva, some of which have only been worked out "in embryo." As through the lapse of time we observe the wonderful improvement in technic and the broadening out of ideals, we see that the work on saliva has also broadened its field. Our forefathers in research have made many mistakes which we have in part corrected, but they had not discovered everything and so it remains to us of the present day to evolve new schemes and to attempt new methods of diagnosis. An indication of this kind is in working on tuberculous saliva which the writer is now doing. Another indication of just as profound value is in trying to detect urea in the saliva in cases of eclampsia. I have no doubt that many readers will have thought of other possibilities. The urine nowadays is examined for everything; and yet it is only a few years that this has been the case. Hardly anyone denies that its examination helps decidedly in diagnosis. It is only in the last two or three decades that we have examined the stomach contents of patients and yet its examination is of paramount importance. So we may find that in the future the examination of the saliva will also play a decided part in the diagnostic arsenal.

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SURGERY OF THE GALL-BLADDER AND DUCTS.*

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When speaking of cholecystitis at the present date, the surgeon does not of necessity mean that only an inflammatory condition of this viscus is present, but assumes that the term be taken in its fuller clinical significance that of an inflammatory condition of the gall-bladder possibly complicated with stones, etc., and as such I will consider this portion of the paper.

It is necessary to eliminate from our minds the old idea that attacks of pain and periods of inflammation of this viscus are due to the presence of stones, as, not only has this been proven in an experimental sense, but we are meeting constantly with cases of marked inflammatory conditions with all the symptoms of stone in which no stones are present upon operating. Naturally for a period of time this practical demonstration was clouded by the haze of the question of presence of calculi at a former time, and that they were expelled before operative interference was undertaken. In more recent years experimental research with controls showed that pain typical of that supposed to be produced by expulsion of stones, was or could be due to efforts at expulsion of the contents of an inflamed, or distended and inflamed gall-bladder, no matter whether these contents were bile, mucus or pus, stones, or a mixture of all these.

This fact being brought so forcibly to our knowledge has done more for the surgery of cholecystitis than years of medical observation and washing of feces for the presence of stones, so that now we operate not only for the relief of cholelithiasis, but also, and quite frequently, for empyema of the gall-bladder, hydrops, etc.

With the foregoing facts it must be admitted that the presence of stone or stones in the gall-bladder, etc., is a marked predisposing factor in producing cholecystitis. We can but admit that the constant or even occasional rubbing of the mucous membrane of the gall-bladder by stone

* Read before the Passaic City Medical Society of New Jersey, December 10, 1903.

may eventually produce a desquamation at some point or points, and then the active microorganism finds its proper bed and medium for propagation.

Experimental research has demonstrated that a sterile body introduced into the gall-bladder will not produce a stone, but that the injection into a sterile gall-bladder of certain microorganisms, such as the typhoid or colon bacilli will be followed by their formation. Further, it is proven at almost every operation when cultures are taken of the contents of the gall-bladder, and microscopical and bacteriological study of the stones is made that one or the other of these bacilli are present in both stone and fluid contents.

Clinically it is also known that those who have suffered from typhoid are more prone to have this disease than those who have not, and that sufferers from typhoid are very prone to have acute cholecystitis as one of the complications. A rarer form of complication is that of perforation of the gall-bladder. (See John F. Erdmann, *Annals of Surgery*, June, 1903.)

How these bacilli enter the gall-bladder to produce the inflammatory condition has been ably demonstrated by Dr. Lartigan, of Columbia College, who maintains that the blood current is responsible for their presence in the liver, and from that organ they are taken up by the bile ducts and find a repository in the gall-bladder. There they may remain inactive for years. Recently I operated upon a case in which the bladder contained 33 stones and clear bile. Culture showed bacillus of typhoid but no other microorganism. This patient, five years before had fever in Cuba, and began to have his first gall-bladder symptoms one year before the operation.

It is admitted also, that microorganisms may possibly enter the gall-bladder and ducts by means of the Vaterian papilla from the intestines.

For the proper consideration of the subject we must recognize the acute and chronic conditions. We cannot ally this disease, in its dangers to appendicitis, in either of its forms, as in the former instance we have a distensible and well-nourished organ, while in the latter we have an organ not well supplied with muscle fiber nor well supplied with arterial distribution. Given a case of acute cholecystitis, we can say in its early stage that we are satisfied that neither gangrene nor perforation will occur in a few hours, nor under ordinary circumstances in a day, while in many cases of appendicitis we know that either of the above may occur in a few hours. Again, the anatomico-surgical relations of the gall-bladder are such that even if a perforation should occur, the general peritoneal cavity would not be invaded until the right pouch bounded by the gall-bladder, colon, and omentum, etc., had been invaded. In other words, with a case of acute cholecystitis we are justified in waiting for a time for the development of ultra acute symptoms or subsidence of the attack with a far greater degree of safety than in an appendicitis.

I would therefore suggest in acute cholecystitis, especially if a typhoidal complication, that a waiting plan is far better than an ultra urgency operative procedure. I do not wish by the above assertion to convey the impression that I never advocate operation in acute cholecystitis for there are cases in which the symptoms such as septic manifestations, danger of rupture or gangrene by over distention, etc., demand immediate interference when seen by the surgeon. And even in these cases it is safe to say that they have been under the observation of the family attendant for a longer period than a case of acute appendicitis would be.

The operative steps, etc., are the same for acute and chronic cholecystitis, and will be considered under the latter.

Chronic Cholecystitis.—These are the cases in which stones are most likely to be found. The history is not one of short duration but is likely to extend over a period of considerable time with evidences of exacerbation and subsidence, and demand operative interference for the relief of pain, gastric and intestinal manifestations, to prevent perforation by ulceration, etc., either into a neighboring viscus or into the general peritoneal cavity, and finally, to prevent malignant degenerations or formations.

Diagnosis.—We cannot always differentiate between cholecystitis, appendicitis, or pancreatitis, nor eliminate the presence of each or either of these latter from a cholecystitis. Far too frequently we find upon operation that the pancreas has undergone an induration or hardening due to either an acute or chronic inflammation. The same is to be emphasized with reference to the appendix. Bearing these complications or concomitant invasions in mind, it is far wiser when operating always to explore both of these structures. Should such be the case, then the removal of the appendix or drainage of the pancreatic and biliary region is demanded. Given a rigid or tense upper segment of the right rectus with pain deep seated in the region of the gall-bladder, the diagnosis, at least tentative of cholecystitis, is tenable. If in addition we have the history of pain radiating to the right shoulder and a tumor in the gall-bladder region, the diagnosis can be positive. Jaundice is never a symptom of cholecystitis except the hepatic or common ducts be obstructed either by interior or exterior means. Temperature and chills in the history point to the presence of pus either in the sac, *i.e.*, an empyema of the gall-bladder or an infection of the gall-duct, *i.e.*, cholangitis.

Operation.—The incision practised by me has always been the perpendicular one, splitting the rectus. The intercostal nerves of supply to the rectus are to be saved when possible, although their division, when necessary, does not. I am convinced, tend to any great extent to atrophy of the rectus, at least of sufficient degree to materially aid in the formation of hernia.

When necessary to lengthen the incision, this can be done by either extending it in a curve along the costal arch toward the xiphoid, or, as

has been practised recently, the cartilages of the ninth, eighth, and seventh ribs can be split and this chondro-diphragmatic flap can be raised with retractors. The T incision, cutting the fibers of the rectus transversely, although practised once by me, has never since been found necessary in all operative manipulations even including difficult duct work.

After incising the peritoneum it is necessary in some instances particularly in chronic cases to remember the enlargement of a portion of one of the lobes, known by the name of Riedel's lobe. This is very likely to be mistaken at first for the gall-bladder. The best method of finding the gall-bladder in those cases where it is not enlarged is to locate the main fissure of the liver, and then pass the fingers downward in the direction of the transverse fissure.

When the bladder is found it is my custom, when possible, to enter the foramen of Winslow with the index and middle finger of my left hand so as to have the structures of the gastro-hepatic omentum between these fingers and the thumb. Then a search can be made for stone in the duct. The next step is walling off the surrounding viscera by gauze packing so as to prevent contact infection by the contents of the bladder in case they are infected. It is not always easy in a tensely distended bladder to diagnose the presence of stone, and therefore some of the fluid may be withdrawn by means of an aspirator, or by cutting a small hole in the fundus and sponging up the leakage as fast as it appears, then clamping this hole to prevent further leakage or soiling.

At the present time it is my custom after proving the presence or absence of stone in the common duct, and packing to prevent soiling of the surrounding viscera, to cut a hole in the fundus of the bladder, grasp the edges of this incision with forceps and have my assistant sponge away the leakage. As this proceeds, traction is made upon the forceps holding the fundus, gradually pulling the bladder well out of the abdomen when possible, enlarging the incision in its wall, and examining the interior of the bladder with a finger. Should stones be present they are removed and then the disposal of the gall-bladder is considered.

Should the bladder be filled with stones, then as in Case I, no opening is made in it, but complete removal is proceeded with without delay. Should the contents be largely pus with stone or not, and no evidence by history, etc., of cholangitis, then cholecystectomy is done, provided the patient's condition admits of it. Should there be evidence that speed in operating or drainage be required, cholecystotomy is performed.

Cholecystotomy.—In doing this operation I take a purse-string suture about the edges of the opening in the gall-bladder, being careful to see that the serous membrane is inverted and tie in a tube previously wrapped in sterile gauze; a few sutures between the parietal peritoneum and the gall-bladder are taken, the original packing withdrawn. A piece of gauze drain is introduced well down into Morrison's pouch and another surrounds the gall bladder, protecting the viscera against overflow or leakage infection. These drains are removed during the first week, and the tube removed when the bile returns clear or is diminished to a very great degree. This usually occurs within four to eight days. After the tube has been removed, a small gauze drain is employed until the sinus is closed.

I have for some time ceased doing the operation of Mayo, in which he dissects out the mucous membrane previous to drainage, except in cases where adhesions are so extensive as to prevent the dissection of the gall-bladder without great danger to the surrounding structures, and feel that where we can take time to do this operation in ordinary cases that cholecystectomy should be done with drainage or not of the duct as symptoms may indicate.

Cholecystectomy.—This operation has many advantages over that of cholecystotomy, some of which are: No danger of recurrence, no necessity for secondary operation, no soiling of the patient by leakage, etc., more rapid convalescence with less danger of hernia, although this danger is slight in any type of operative procedure, complete or practically complete eradication of the infected area, etc., thereby limiting the dangers of prolonged septic discharge and the great possibility of absorption of putrid material. The operation is one of considerable ease, and when once fairly understood should be done in preference to cholecystotomy, but for the beginner in gall-bladder surgery, I would advise cholecystotomy in preference to the more radical operation.

As a preliminary to cholecystectomy I would advise, as in common duct work, the use of a sand cushion under the back in the upper lumbar region. This brings the duct attachment in closer relation to the abdominal wall and facilitates the operative task very greatly.

After the bladder is exposed an incision is made on either side through the peritoneum so as to make a flap to fill in the raw surface of the liver made by removal of the bladder. After one has found the cleavage between the serous and muscular coats the separation is readily made by the finger. Some assistance is to be gained by insinuating the finger between the cystic duct and adjacent tissues, and then working upward and toward the cystic fissure. The hemorrhage is free oozing and readily checked by packing with the exception of bleeding from the cystic artery, although this may be met with at the last of the stripping or in cutting away the bladder, and can be readily controlled by clamp and ligation. In case no drainage is decided upon, the duct is tied off and treated in any of the ways proceeded with in the stump in appendix operations. Should the case be an infected one, drainage is made down to the stump with a strip or two of gauze. In case the ducts are to be drained, we leave it, *i.e.*, the cystic, open or split it down to the common duct, then either sew with catgut a

rubber tube to the edges of the opening, packing gauze around the tube, or drain with gauze strips. The former of these methods is advised as the rubber tube carries off the flow of infected material much better for the first few days. The catgut suture is absorbed before the time for the removal of the tube is indicated.

Malignancy of the bladder calls for cholecystectomy, when possible.

Cysticotomy or incision of the cystic duct is done for impaction of stone, or for drainage of the cystic and common ducts.

Common Duct.—In addition to stone as a cause, obstruction may be due to malignancy of the duct itself or malignancy of surrounding viscera of such degree as to produce pressure sufficient to prevent the flow of bile into the intestines. Operative procedure will then depend entirely upon the extent of invasion, varying from removal of the diseased tissue to a cholecystenterostomy or allied anastomosis of the gall-bladder and intestines, provided, in these cases of bladder and intestine anastomoses, the malignancy does not prevent the flow of bile into the gall-bladder. Stone may occupy any portion of the duct. When in the course of the duct, its removal is accomplished by incising over the stone, extracting it, and then draining the ducts, or preliminary sutures may be taken over the site of the stone, cutting between the sutures, and after extraction tying them so as to close the operative wound and prevent leakage. I do not believe any procedure of suture necessary, as these wounds heal spontaneously if properly drained.

Should the stone be lodged in the mouth of the Vaterian papilla or its immediate vicinity, one or two operations may be performed, either the transduodenal operation of McBurney or the postduodenal one advocated—but not as yet done—by Dr. A. A. Berg (see *Annals of Surgery*, August, 1903, p. 275), and by C. M. Cooper, who reports three cases successfully done by his method (see *Annals of Surgery*, September, 1903, p. 480).

Should drainage of the common duct be advisable, this can be continued for as long a time as necessary by introducing a rubber tube into the common duct, sewing it there or not, and proceeding as advised in drainage of the cystic, etc.

After-treatment of these cases is often complicated in the first few days by persistent and almost uncontrollable vomiting. Bile excretion is often very much increased in the early morning hours, from 1 to 4 A.M., and is particularly disagreeable by reason of soiling of dressings and the skin irritation resulting. The flow can be markedly diminished by giving the patient a cracker or bit of toast and milk about 11 or 12 P.M., while the skin irritation is overcome by free use of an ointment of ichthyol, from ten to thirty-three per cent.

When drainage has been done flatulency with distention chiefly limited to the epigastric and umbilical region is a depressing feature. This is readily remedied by the use of 5 to 10 grains of powdered ox-gall every four hours, continued from two to four days.

A brief history of a few illustrative cases is herewith appended, showing some of the various cases of interest occurring in my practice in the past few years:

Case I.—Cholelithiasis, Cholecystectomy, Choledochotomy, etc.—Female, forty-five years of age operated upon two years ago. Gave a history of biliary colic for a number of years. In the early part of her disease the attacks were infrequent, one or two a year; they then, as time passed on, became more frequent, three or five a year. After another period of time they became as frequent as one attack a month. When seen by me in the fall of 1901 she was having attacks every few weeks, requiring from one-half to one grain of morphine at a time. Gall-stones were found in the feces. Her examination showed a woman well nourished, no jaundice, no temperature; history distinctive of gall-bladder invasion; pressure in the epigastric region produced marked pain; some tumefaction, taken for the gall-bladder. Operation.—Upon exposure of the bladder it was found to be filled with stones to such an extent that nodulations due to them could be felt all over the wall; no apparent evidence of any fluid in the bladder. Palpation of the common and cystic ducts revealed numbers of stones; hepatic duct was dilated, elongated, and also filled with stones. A complete cholecystectomy was done without opening the bladder, cysticotomy, choledochotomy and incision of the hepatic duct were done, that is, the cystic duct was cut wide open to the common duct, common duct incised, hepatic duct also cut; twenty stones, size of marrow-fat peas were extracted from these ducts; the upper portion of the common and hepatic ducts where incised were sewed, and the lower portion of the common was left open for drainage; a tube was introduced into the common duct and the wound packed with gauze. Recovery was rapid, the patient being discharged within four weeks. About one year after, she reported that she had had one attack of pain. This evidently was due to a small stone left beyond reach in the hepatic duct, although I introduced a blunt uterine curette well into the dilated hepatic duct while removing the calculi.

Case II.—Cholecystitis, Ideal Cholecystotomy.—A widow, forty-five years of age, emaciated, no jaundice; history of uneasiness, pain very slight, indigestion, gastric and intestinal manifestations, some flatus; sense of weight in right half of abdomen; one or two attacks only in a period of four years, the pain at which times was not sufficient to require an anodyne, but was relieved by applications of heat, etc. Palpation revealed a tumor extending well into the right lumbar region; tumor was fixed and was suspected by a number of consultants to be a malignant growth of the ascending colon. I was of the opinion that it was gall-bladder disease, whether malignant or enlarged by distention not known. Exploration

revealed enlarged gall-bladder six inches long, congested and filled with bile and also containing a stone 1½ inch long by an inch in its transverse diameter. The gall-bladder was sponged out, the stone extracted from its point of impaction in the cystic duct; incision in gall-bladder closed by two rows of suture, a small strip of gauze placed in apposition with the line of suture, and the abdominal incision closed up to the point of the drain; drainage removed in forty-eight hours. Patient made prompt recovery, and has had no further attacks.

This is the only case in which I have done the ideal operation of cholecystotomy, and do not feel at the present date that we are justified in doing the ideal operation. Had I this case to do again, I should, without question, do a cholecystectomy, as it was a typical case for such an operation.

Case III.—Cholelithiasis, Cholecystotomy, Cysticotomy and Choledochotomy.—A man, thirty-five years of age, history of an injury thirteen years before by a plank falling and striking him in the region of the gall-bladder. Within a few months following this injury he had typical attacks of biliary colic; this was followed by numerous attacks, increasing in frequency and intensity; up to the time at which I saw him. He had lost very greatly in weight, and would often have attacks of jaundice, although not accompanying every attack of biliary colic. A diagnosis of cholelithiasis invading the common duct was made. Operation was extremely difficult owing to the adhesions which masked any possibility of differentiating the viscera in this region. The gall-bladder was finally found, contracted and filled with stones; the ducts markedly dilated and all filled with stones, over three hundred stones being removed from the gall-bladder and ducts. A lithotomy scoop was passed into the ducts a distance of four inches, scooping out at each maneuver small quantities of calculi; a drain was placed in and the wound packed. The flow of bile was quite excessive and with it numerous small stones were discharged each day. This washing out of calculi by the bile continued for over two weeks, sometimes as high as forty and fifty being picked out of the dressings. Owing to the dissection of the adhesions a fistula formed in the transverse colon. Successive attempts at closure were unsuccessful, but at the time of discharge only a small sinus was left. It was rather interesting to note the rapid increase in flesh the patient made, even while in the hospital. Within a period of three or four weeks he gained twenty pounds. Within a period of six months after his operation, the patient had gained fifty pounds.

The benefit of the drain of the duct in this instance, although no septic process was present, is readily seen by the fact of the discharge of small calculi which were washed out of the hepatic and biliary ducts of the liver.

Case IV.—Acute Pancreatitis, Cholelithiasis, Cholecystotomy.—A woman fifty-two years of age; had been a sufferer from attacks of supposed biliary colic for several years; when seen by me was suffering from epigastric pain; pulse 120; slight elevation of temperature; peculiar dyspnea; mild degree of cyanosis; patient's general condition bad. Diagnosis of acute cholecystitis; abdominal section made, and upon cutting through the peritoneum, a large quantity of fluid resembling beef tea was expelled; small white patches were seen all over the omentum and mesentery; gall-bladder distended and filled with stones. Diagnosis changed to acute pancreatitis with fat necrosis and cholelithiasis. Gall-bladder opened hurriedly; two thousand three hundred and fifty stones extracted; patient died in forty-eight hours. Examination of the specimen of the omentum showed typical fat necrosis.

Cases V. and VI.—Ultra Acute Cholecystitis, Cholecystotomy.—I have recently been called upon to operate upon two cases of ultra acute cholecystitis, both occurring in people under forty, one a trained nurse of the age of twenty-eight, and one a priest at the age of thirty-five. In the nurse eighteen very small stones, rough mulberry in character, were found in a distended gall-bladder; no pus evident macroscopically. In the priest three very small smooth stones were found, the gall-bladder also distended and no pus macroscopically found. The pulse and temperature in both these cases were practically alike, the temperature rising rapidly to 104° F. in the first twelve hours, pulse varying from 120 to 132; intense pain; tenderness in the region of the gall-bladder; general expression bad. Both these cases were operated upon in emergency; cholecystotomy done in each case; ultra acute symptoms subsided in twelve hours after the operation.

Case VII.—Cholecystitis, Pregnancy Five and One-half Months, Cholecystectomy.—Patient thirty-eight years of age; history of gall-bladder invasion, dating from a period of four years or more when seen by me; had been diagnosed by some other physicians as floating kidney. When seen by me with family physician, had a temperature of 101⅗° F., pulse 126; woman fairly well nourished; tumor in the right hypochondriac region about the size of an orange; exquisitely sensitive; cutaneous hyperesthesia marked; uterus on a line with the umbilicus. Refused operation; reported next day not any better; again advised operation; not accepted; reported on the second day following, condition worse; operation accepted. Upon exposure, gall-bladder was found to be 9½ inches long from the cystic duct to fundus; fundus was four inches across; bladder covered with numerous necrotic areas; large quantity of fluid resembling beef tea; omentum walling off this region; stone found impacted in the mouth of the cystic duct; cystic and common ducts palpated with negative result; gall-bladder released from adhesions and opened with a knife; large quantity of fluid expelled; edges of the incision grasped with forceps and the gall-bladder brought well up on the abdominal wall; the remainder of the fluid was sponged out and a stone,

which was 2½ inches long, 1½ inch through its diameter, weighing 550 grains was removed from the mouth of the cystic duct. Cholecystectomy was done, accompanied by profuse oozing, readily checked by means of gauze packing; a ligature was tied about the cystic duct; gall-bladder excised; stump of cystic touched with carbolic acid; large gauze drain inserted down to the duct, another small one into Morrison's pouch; drainage removed on the seventh day; patient miscarried twelve hours after the operation; discharged from the hospital in the middle of the third week with a small sinus left. It was interesting to note in this case the rapidity of repair; the small incision (four inches long) through which a cholecystectomy was done, and the fact that although a number of necrotic spots were evident upon the gall-bladder surface, no slough or active suppuration took place. Had a cholecystotomy been done, the patient would not have been discharged short of five or seven weeks, and an immense amount of slough and suppurating of the diseased gall-bladder would of necessity have followed.

Case VIII.—Cholelithiasis, Stone in Common Duct, Choledochotomy.—Female, about thirty-three years old, suffered from biliary colic for a number of years; lost in weight over forty pounds in four years, although at the present time is a woman fairly well nourished; appearance of jaundice; diagnosis of common duct invasion. Operation revealed stone in the middle of common duct. This was one of the easiest exposures of the common duct that I have ever had or ever seen. Patient had a marked diastasis of the recti muscles, evidently due to a pregnancy. This made a particularly lax abdominal wall; the duct itself could be raised from its posterior attachments very easily. No attempt at preliminary suturing was done in this operation; the duct was cut directly over the site of stone; stone extracted about the size of a filbert; drain put in down to the point of the incised duct; abdomen closed up to the point of the drain; patient discharged from hospital the third week. At the expiration of eight months the patient had gained twenty pounds.

THE REGULATION OF THE DURATION OF EXPOSURE AND THE DISTANCE FROM THE TUBE IN X-RAY THERAPY.*

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The first question an X-ray operator has to determine is at what distance shall the tube be placed from the patient and what shall be the duration of the exposure.

In the literature on this subject there is an especial want of observation on these practical points. One can readily see why such details have not been given. The component parts of different machines and tubes vary. Every outfit has its several variable and controlling factors, different combinations of which bring about a different quality of X-light with its corresponding effectiveness. A great deal has to be learned by experiment and experience with each outfit. Fairly definite directions, however, can be given in regard to these factors even if they be only general and relative. If we fix the other controlling factors and make them constant we can with a fair degree of accuracy prescribe the treatment measured in time and distance.

Besides the latter two we recognize in every outfit as controlling and variable factors the degree of vacuum of the tube, the resistance in the circuit and the quantity of electricity (ampèrage). The penetration of the light is dependent upon the degree of vacuum and the resistance in the circuit and the intensity is dependent upon the quantity of electricity.

The degree of vacuum and the resistance can be regulated and made constant factors by means of the vacuum and spark-gap regulators. The volume of electricity is governed by the speed of the plates in the static machine and in the coil by the speed of the interrupter and the current supplied to the primary. These can be governed by the regulators provided for the purpose.

If we render constant the penetrating quality and the intensity of the light we need then consider only the time and distance.

The accompanying table is given to show the relative effect at different distances based upon the rule that applies to all forms of radiant energy that the intensity varies inversely as the square of the distance.

Distance.	Relative intensity.			Safety limits.
2	1	1,000	25.00	2.5
4	1/4	.250	6.25	10.0
6	1/9	.111	2.77	22.5
8	1/16	.062	1.56	40.0
10	1/25	.040	1.00	62.5
12	1/36	.027	.69	90.0
14	1/49	.020	.51	122.5
16	1/64	.015	.39	160.0
18	1/81	.012	.30	202.5
20	1/100	.010	.25	250.0

In the first column are the distances at two-inch intervals. In the second are the relative intensities expressed in fractions. In the third are the same expressed in decimals. In the fourth are the relative intensities expressed in decimals taking the intensity at ten inches as unity. This column is useful, since ten inches is the average distance for an exposure; when one wishes to estimate the total amount of treatment given he can by means of this column reduce the exposures which may have been given at various distances to their equivalent at ten inches and then add the number of minutes. In the fifth column are the safety limits or the duration of time which it is safe to expose a patient without danger of a dermatitis. These figures are the result of an experience of nearly two thousand exposures personally given and by experiments in bringing about a redness of the skin by a continuous exposure. The

* Read before the Southern Surgical and Gynecological Association, held in Atlanta, Ga., December 17, 1903.

figures are about one-half of those required to produce a moderate degree of redness of the skin of the forearm with a tube of one ampère and fifteen volts with an equivalent spark-gap in the secondary circuit of five inches.

I have found the column of safety limits a valuable guide in radiographic work, and the knowledge that approximately twice the duration of these exposures under the conditions that I can regulate will produce a dermatitis has been of great value in directing the treatments.

Every outfit as well as the different combinations of the controlling factors will have its respective length of time to produce a dermatitis. Every operator should therefore at first try to determine this point. He can thus avoid undesired and unlooked-for results and foretell by several days the effects that occur.

The fear of unexpected and harmful results has been too much exaggerated. There is no more reason why we should fear the danger from the rays than from strychnine. Both are powerful therapeutic agents capable of regulation. They should be prescribed and used within their limits and according to the indications.

The treatment of deep growths requires especial attention to the time and distance. The difficulty in reaching them has been the danger of injuring the superficial tissues before the deep growths are affected. Now we know it is not necessary to bring about a necrotic inflammation to destroy a cancer. If we can have the rays penetrate the tissues with moderate uniformity we can then hope to destroy the deep growths. The closer the part is to the tube the greater is the difference in the effect upon the skin and the part beneath. For instance, suppose we have a growth four inches from the surface and the surface four inches from the anode: According to our table the effect on the skin would be represented by .250 and that on the growth .062, or a difference of .188. Of course this does not take into consideration the loss of intensity due to penetrating the tissues. If the surface of the skin be placed at eight inches the growth will be at twelve; the relative effects will be .062 and .027, or a difference of .035. With the skin at sixteen inches and the growth at twenty the relative effects are .015 and .010, with a difference of .005. We thus see that the further the part is from the tube the less is the difference between the effect on the skin and the part beneath. We should therefore place the part far off and make due compensation by increasing the duration of exposure directly as the square of the distance, or by referring to the table one can determine the duration for the exposure. My rule is not to expose in ten days more than the number of minutes required to produce a dermatitis. As this point is approached the exposures are shorter and at longer intervals in order to watch developments. As soon as the redness is reached and its degree determined, the treatment can be continued and directed according to the indications.

I realize that in the above remarks there are vulnerable points, but it is a tendency toward a more rational technic based upon a physical law. The sooner we bring our technic under fixed laws the more uniform and more successful will be our results.

SEA-BATHING IN SOME FORMS OF SKIN DISEASES.*

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Sea-bathing, whether used as a luxury or employed as a remedy, is limited to a fraction of the year. This being the case, expensive trials and experiments with this measure in any form of skin affections can hardly be undertaken with success. This reason probably accounts for the remarkable paucity of literature on the subject. For diligent research and personal inquiry failed to elicit any information on the influence of sea-bathing in diseases of the skin.

My experience with this method of treating some forms of skin diseases extends but over two summers, yet the success attained in each case sufficiently warrants the suggesting, if not the recommending, of sea-bathing as a reliable and curative agent in certain skin affections.

This paper deals briefly with forms of cutaneous diseases which have manifested a willingness, as it were, to yield to the influence of sea-bathing. There are others which appear to be equally amenable to the same agent, but the observations regarding them are as yet immature.

My list embraces the following diseases: Pityriasis versicolor, six cases; Herpes tonsurans maculosus et squamosus, three cases; Chronic eczema, five cases; Pruritus senilis, two cases.

To avoid unnecessary repetition one case of each form of the diseases mentioned will be cited for illustration.

Case of pityriasis versicolor: The victim was a young man, a lawyer, twenty-five years old. He was afflicted with that disease for several years. The blotches extended on the front and back of the trunk, neck and arms. Both his ability to secure the best advice and his anxiety to get rid of the disfigurement, which prompted him to carry out every suggested measure, failed to cure him. Two summers ago the patient was advised sea-bathing. After taking a dozen baths the disgusting affection disappeared.

Now I am well aware that pityriasis versicolor is far from being the opprobrium of dermatology. Indeed some authors consider it a one-night-cure disease. Still, cases come up from time to time which defy all care and the very best of remedies. They will persist in returning in spite of your best efforts. They are like the will-o'-the-wisp.

*Read before the New York State Medical Ass'n, October 20, 1903.

Sea-bathing in these stubborn forms is a remedy par excellence.

But more signal success has been achieved in the treatment of a skin disease which occurs less frequently and is of much longer duration, even under treatment, than the one previously considered. I refer to acute general Herpes tonsurans maculosus et squamosus.

Let me cite one typical case, history and treatment. A girl, aged twelve years, had an attack of this disease in the beginning of June this year. The eruption extended over the trunk and the extremities. First, there appeared small, red, flat papules. Then, in two days, the papules turned into small patches. Both papules and patches were covered with oily scales. The exfoliation began at the center of each path, and gradually ended at the periphery, leaving the point from which it started pale and depressed. Shortly, typical rings formed from which occurrence and peculiarity the disease is commonly known as ringworm of the body. The itching was extremely intense and distressing.

Sea-bathing was suggested for no other reason than pure experiment. The child took ten baths in ten days and got rid of her trouble. In this case there was observed a total absence from all forms of medication—internally or externally. Sea-bathing alone received the credit for the cure.

It may be well to mention that both of these affections of the skin are parasitic in origin. Pityriasis versicolor is eminently so and is universally acknowledged to be caused by the fungus *Microsporon furfur*. Herpes tonsurans maculosus is caused by the *Trichophyton tonsurans;* this causation, however, is not so universally accepted; some maintain that it is an external expression of gastro-intestinal disturbance, as was lately argued in an extremely interesting and elaborate paper by my friend Dr. Ludwig Weiss.

The mycotic origin of these diseases is alluded to because of the apprehension that some might claim that sea-water containing, as it does, iodine, bromine and other antiparasitic elements and compounds which have the reputation, on terra firma, as being inimical to the life and growth of low forms of animal and vegetable organisms, produces the curative effect on the diseases of the skin. But the following cases will demonstrate the efficiency of sea-bathing in diseases of the skin which are positively non-mycotic.

A man, about forty-five years, suffered from gout and rheumatism for ten years. Within the last year he gradually developed dry eczematous patches on his shoulders, legs and hands and lumbar region. The induration, furrows and color of the skin were typical of chronic eczema. The itching was so intensely excruciating that both rest at day and sleep at night were unknown for many a month. Every form of treatment was employed without avail. Sea-bathing was finally recommended. Two baths a day were taken for a period of ten weeks with complete satisfaction to the sufferer. While traces of the old foe are left in slightly perceptible hardness of the affected skin and pigmentation, the troublesome affection disappeared, apparently for good.

The last case to mention in which sea-bathing was a veritable godsend was a man of seventy years, who had pruritus senilis of long standing. In his case, as in a good many other similar cases no eruption was visible nor a cause discoverable except a susceptible, irritable skin.

Daily ocean dips were advised and taken during the entire summer with the result of freeing the homo senilis from his horrible pruritus.

Now for comparison and comment: Assuming that the therapeutic virtue of sea-bathing rests in the chemical composition of the sea water, I directed a few of my patients who suffered from diseases of the skin above mentioned to bathe in tanks filled with ocean water such as are found in some of the regular Russian and Turkish bathing establishments—tanks of water which are considered "as fresh as the sea but safer." I must confess the utter failure to obtain any appreciable results. In view of this, the comment and conclusion inevitably are that bathing in the sea, besides the inherent properties of the medicated water, derives additional value from some other sources which are, I believe, first the longer immersion which is possible because it is more agreeable in the sea; second, the pounding of the billows which rubs the water more thoroughly into the skin; third, the exposure to the sun in the interval of the dips, which dries the solids of the water into the skin, and lastly, the rolling on the sand of the beach which wonderfully helps to remove scales and other pathological débris from the skin, and thus affords the water a better chance to penetrate the affected areas.

These reasonings may sound far fetched, yet a harmless theory is better than none.

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PERICARDITIS; WITH THE REPORT OF CASES.*

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The object of this paper is not for the purpose of presenting new points but to distinctly emphasize three points: First, the insidious development of pericarditis, and how frequently it is overlooked unless particularly sought for. Second, that pericarditis of a severe type may develop during the course of a very mild pneumonia. Third, the difficulty of distinguishing obliterative pericarditis from acute general tuberculosis involving the serous membranes.

Pericarditis may be classified as primary or idiopathic and secondary. This latter form occurs most frequently after acute articular rheumatism, septic processes rank next to rheumatism, in tuberculosis it may occur as a part of the gen-

* Read before the Medical Society of Troy, N.Y., and Vicinity.

eral involvement of the serous membranes or succeed extensive pulmonary lesions. Among other causes may be placed acute eruptive fevers, Bright's disease, diabetes, scurvy, etc.

Pathologically, pericarditis may be classified as dry and moist. It generally begins as the dry form, in which there is at first a redness of the membrane which soon becomes lusterless and is later more or less covered by an exudate of fibrin. The amount of fibrin may be small or great. The moist form is as a rule an advanced stage of the dry form. The exudate may be serous, sanguineous or purulent depending on the etiology. The hemorrhagic form occurs in tuberculosis and in cancer. The disease may terminate in one of several ways: (1) It may end in resolution by absorption of the exudate: (2) it may become chronic and dense bands of adhesions form between the two layers of the pericardium and also between the pericardium and the surrounding structures. (3) The purulent form may rupture into the esophagus, pleuræ, stomach or even into a bronchus. The pus may become inspissated and later a deposit of lime salts ensue.

Pericarditis, as has already been said, is very often overlooked on account of its insidious onset. Very often no subjective symptoms are present at the onset of the disease and the diagnosis can be made only after a very careful physical examination. If during the course of an acute infectious disease the rhythm of the pulse becomes altered, or its rate increases out of proportion to the rise of temperature, or the heart's action becomes tumultuous, or a sudden rise of temperature takes place, a careful physical examination of the heart should be made. On the other hand, the onset of pericarditis may be marked by severe pain, which may be anginal in character. The form with effusion may present characteristic symptoms as altered cardiac rhythm, precordial distress, aphonia dyspnea, dysphagia, cough and other symptoms of pressure, and often a very active delirium.

In the majority of cases the diagnosis is made from the physical signs. In the dry form there is one sign which is of diagnostic importance, and that is the pericardial friction rub which may be single or a to-and-fro rub and is intensified by pressure on the stethoscope. If it is single it is generally systolic in time.

The friction rub of pericarditis may be confused with the pleural friction, the pleuropericardial friction or an organic heart murmur. The friction of dry pleurisy disappears on holding the breath while the pericardial friction rub is not altered. From a pleuropericardial friction it is more difficult to differentiate it, as both are present during the cessation of respiration. The pleuropericardial friction becomes more intense during inspiration and less during expiration, while the pericardial friction is not altered. From an organic heart murmur it is differentiated by the time and transmission of the murmur and the character of the pulse. Another important sign which is often present is the friction fremitus.

In pericarditis with effusion the signs are more numerous, but vary with the amount of fluid: *Inspection.*—There may be bulging of the precordium and complete or partial obliteration of the intercostal spaces. The apical impulse if seen is feeble and is often seen upward and to the left. *Palpation.*—The apical impulse is feeble or absent. *Percussion.*—The cardiac area of dulness is increased in size. The area of dulness is triangular in outline with its base below and its apex directed toward the junction of the third left rib and the margin of the sternum.

If the effusion is large there may be detected in the left infrascapular region, an area of dulness due to compression of the lung. *Auscultation.*—The friction sound heard in the first stage may entirely disappear at this time. The heart sounds are feeble and distant, the first sound may lose its muscular element and resemble the second sound. Bronchial breathing, due to compression of the lung, may be present in the left infrascapular region corresponding to the above mentioned area of dulness.

The diagnosis of pericarditis with effusion may be confused with dilatation of the heart. In the latter, the apical impulse is generally visible and wavy. The area of dulness is not triangular. The cardiac sounds are sharp, clear and not distant.

Case I.—This patient entered the hospital as one of probable typhoid fever, which disease its symptoms strongly suggested, on January 28, 1903; is a male, twenty years of age, boiler maker by occupation, from whom the following anamnesis was obtained. Family history is perfectly negative in regard to anything that has bearing on his present condition. He had gonorrhea two years ago and has never been ill otherwise until the present illness. Present illness began five days before admission, with pain in the abdomen, severe frontal headache, loss of appetite, looseness of the bowels and a slight cough. As these symptoms resembled typhoid fever, the Widal and Ehrlich's diazo reactions were performed and both were negative. The blood examination showed hemoglobin 70 per cent., red corpuscles 3,500,000, and white cells 17,000 per cm. (The hyperleucocytosis directed our attention to some infectious process, thus showing the value of blood examinations.) The urine was negative. The sputum was mucopurulent, blood stained and contained pus cells and the diplococci of pneumonia.

Physical Examination.—The patient was well developed and of good musculature. The lungs were negative except for a small area of dulness at the base of the left lung posteriorly. Over this area, vocal fremitus and resonance were increased and fine crepitant râles and bronchovesicular breathing were heard. Heart sounds and cardiac dulness normal. The pulse was of good character. Liver was overlapped above by vesiculotympanitic note and the liver dulness extended slightly below the free border of the ribs. Spleen was slightly enlarged. Abdomen slightly

distended and tympanitic. Other organs, reflexes and sensations were normal.

January 31, four days after admission, the onset of the pericarditis was detected by the presence of a to-and-fro friction rub heard in the third left intercostal space and was not transmitted from the precordium nor altered by the cessation of respiration.

February 9, ten days after the onset of the pericarditis, the following signs were detected: *Percussion.*—The cardiac area of dulness began at the third left rib, at the level of the fifth rib it extended 19 cms. to the left of the midsternal line. The apical impulse was within this area of dulness. *Ausculation.*—The cardiac sounds were feeble and distant. The respiratory murmur and voice sounds were absent in the precordium. Previous to the advent of these signs there was no change in the subjective or objective symptoms except that the patient's countenance became dusky and anxious. At the time of appearance of the friction the pulse rose to 120 with no change in temperature or respirations, but during the formation of the effusion the temperature was 104° F., the pulse 130 and the respirations 40. In the latter part of the illness the pulse became irregular. The fluid disappeared to a considerable degree but soon returned and the patient is still under observation at the hospital.

Case II.—Male, aged twenty-two years, born in Turkey, buttonholer by occupation. *Family History.*—Father and some other relatives died of consumption. Mother alive and well. Patient has always been well until the present illness, which began in March, 1902, when, following a severe "cold" he became short of breath on exertion, had pain in the epigastrium and back, and had a severe cough. He entered the Samaritan Hospital in April, 1902, and was treated until June when he left the hospital much improved. During his presence in the hospital his chest was aspirated a number of times, the character of the fluid being serosanguineous. The patient remained in a fairly comfortable condition until two weeks before his last admission, November 29, 1902, when he again became quite short of breath and coughed considerably.

Physical Examination.—Patient is of medium stature, scanty musculature, pale, poorly nourished. The lower intercostal spaces are effaced especially on the left side, recession of the supra- and infraclavicular spaces, respiratory movements are greatly restricted especially on the left side. Vocal fremitus is absent below the level of the third rib and exaggerated above. *Percussion.*—Anteriorly, absolute dulness below the level of the third rib, the upper limit of dulness reaches a higher point in the axillæ. Posteriorly, the dulness extends from one inch below the angles of the scapulæ to the free border of the ribs. Posteriorly there is on the right side a small area of increased vocal fremitus and resonance, bronchovesicular breathing is also heard here. *Auscultation.*—Respiratory murmur is harsh above the level of the third rib and lost below. Vocal resonance is marked above and decreased below the level of the third rib. Apical impulse neither visible nor palpable. Heart sounds are feeble with reduplication of the first sound. Cardiac dulness obscured by the effusion. Pulse is small and rapid. Liver and spleen are normal. In the latter part of November fluid began to collect in the abdomen and ascites developed to a considerable degree. A little later the hands, feet, legs and thighs became quite edematous. About six weeks later a pericardial rub was detected but it disappeared in the course of a week or two. The cardiac sounds became feebler and distant and the pulse irregular. Dyspnea and cough became very annoying at times but were relieved after removal of part of the effusion. The right pleural sac was tapped twice but no fluid was found. The left pleural sac was tapped eleven times, the total amount of fluid removed was 20 pints. The abdomen was tapped once and 20 ounces of fluid removed. The fluid returned very soon after removal. The fluid was serosanguineous and under microscopical examination no bacteria were found. The sputum has been repeatedly examined but no tubercle bacilli were present. Blood examination showed 7,500 white cells per cmm. The lymphocytes slightly exceeded the normal number. The urine was negative.

This latter case is of interest because of the liability of confusing it with the disease to which F. Pick, of Prague, called the attention of the medical profession, and to which he gave the name of pseudo cirrhosis of the liver due to obliterative pericarditis. The principal symptoms of this disease are ascites, dyspnea, slight edema of the extremities, cyanosis, enlargement of the liver and the local signs of pericarditis. In differentiating this case from Pick's disease several factors must be considered. The effusion in the chest, the ascites and the general anasarca made their appearance before the pericardium was affected; while in Pick's disease the pericarditis is the primary cause of the accumulations of fluid. The liver was not enlarged as in obliterative pericarditis. The fluid drawn from the abdomen was inflammatory in character, *i.e.*, sanguineous and not simply serous as in transudations. The edema of the extremities was early in the course of the disease and was very great; in Pick's disease the anasarca is late, and, as a rule not very great.

The process having started some time ago in the lung and later involving the pleuræ together with the character of the fluid withdrawn and the loss of weight, etc., point toward the tuberculous process.

In conclusion it will be well to mention a few of the important signs of adherent chronic pericarditis: (1) A systolic retraction in the region of the apex. (2) The sign described by Broadbent, which is a distinct systolic retraction of the chest wall in the region of the eleventh and twelfth ribs on the left side. (3) Friedreich's sign, a collapse of the cervical veins during diastole, and, according to Kussmaul, a swelling

of the cervical veins during inspiration. (4) The pulsus paradoxus is significant of adherent pericarditis or rather of the dilatation which follows. The pulse becomes small and feeble during inspiration, due to traction on the adhesions during the inspiratory expansion of the lungs. As these bands are drawn upon it causes a constriction of the vessels of the mediastinum; thus resulting in a small feeble pulse wave during inspiration.

INDICATORS IN GASTRIC ANALYSIS, WITH SPECIAL REFERENCE TO TROPEOLIN OO.

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My attention has recently been called to this matter, partly by a study of various practical problems in physiological chemistry, and partly by various articles which have appeared on the subject in the medical literature.

In spite of being an originator of a method of gastric analysis dealing directly with proteid digestion, it seems to me that we must all admit that the most important detail in the chemic analysis of chyme is the acidity and, especially, hydrochloric acidity.

Two methods of measuring hydrochloric acid by titration have received the attention of the profession. In one, the investigandum is treated with decinormal sodium hydroxid solution with an indicator in the capsule; in the other, a drop of investigandum is removed from time to time during the titration and is tested qualitatively for free mineral acid. The latter method is very tedious and almost necessarily requires a preliminary titration by the former method but is, I believe, far more accurate. One of two reagents may be employed—the phloroglucin-vanillin and the resorcin-saccharose solution. Either one of these when heated short of charring, drop for drop of investigandum, yields a brilliant crimson ring in the presence of a mineral acid. Personally, I have not used the phloroglucin-vanillin test for about ten years, as the resorcin-saccharose reagent is more stable and while said to be a trifle less delicate, it will detect one part of hydrochloric acid in 4-5,000 of diluent. In other words, its delicacy is sufficient for practical purposes. In experimenting with dilutions of pure hydrochloric acid, we can determine the end reaction between crimson and dull yellow within two or three degrees of the titration. In experimenting with chyme, there is a pretty sharp change from crimson to rose and from this to dull yellow. The rose color probably indicates a freeing, by heat, of hydrochloric acid in organic combination or the action of fermentation acids or both.

In gastric analysis and similar work, the term degree or per cent. of acidity refers to an amount of decinormal monobasic alkali solution equal to one per cent. of the investigandum and as the latter is usually 10 c.c., a degree corresponds to $^1/_{10}$ of 1 c.c. in the burette.

In the method of titration with an indicator in the capsule with the investigandum, dimethylamido-azobenzol is commonly employed, although, formerly, Congo red, tropeolin OO, and even benzopurpurin and various other dyes, were employed. A series of experiments, reported last year in *American Medicine,* have convinced me that dimethyl (those of us who have become familiar with it, use its first name alone for the sake of brevity) gives too high results by about 15 degrees, if we take as the end reaction, the final color change, but that we must read the free hydrochloric acid at the point where the bright cherry-red changes to orange and this point can be corroborated by noting also the final discharge of color and making the subtraction of 15 degrees.

Total acidity is indicated most conveniently by using phenolphthalein as an indicator. This reaction is sharp within a few degrees of gradual development of color and is considered fairly accurate by chemists. In states of euchlorhydria (25 to 50 degrees of hydrochloric acid), the total acidity will vary between 3 and 2 times the free hydrochloric acidity. In hyperchlorhydria, the total acidity will range between 2 and 1½ times the free hydrochloric.

Between free hydrochloric acid and total acidity, we have fermentation acids, acid salts—principally phosphates—and combined hydrochloric acidity. Nothing definite is known about combinations of proteid and fermentation acids. In accordance with the general principle that a strong acid supplants a weak one, hydrochloric acid will be neutralized before the vegetable and fatty acids. The principal organic acids found in chyme are acetic, lactic and butyric, but various others occur. These cannot be readily separated, either quantitatively or qualitatively. On account of the antiseptic action of hydrochloric acid, however, large quantities of organic acids probably never develop in a stomach with regularly high hydrochloric acidity, although, if the eu- or hyperchlorhydria is merely temporary or if there is ischochymia, there may be considerable organic acidity in the presence of a relatively high hydrochloric acidity.

How shall we separate the various acidities intermediate between free hydrochloric acid and the total reaction with phenolphthalein? Aside from investigations on the incinerated chyme, two methods have been proposed. One depends upon the following reaction: Proteid chloride plus sodium tungstate equals sodium chloride plus proteid tungstate, the last being insoluble and neutral to phenolphthalein, whereas proteid chloride (combined hydrochloric acid) is acid to this indicator. As I pointed out in the report previously mentioned, this statement is only measurably true. While a marked fall in acidity by phenolphthalein occurs after adding neutral sodium tungstate to the investigandum, while we are reading the burette, we observe that the pink color has become discharged, we recover the color by adding a few drops more of the alkali

solution and the same phenomenon is repeated and, if we let the test stand for a few hours, we can gradually run the acidity up to almost exactly the same reading as before we added the tungstate. Personally, I am by no means convinced that the diminution in the immediate total acidity correctly indicates combined hydrochloric acid—aside from the matter of phosphates to be considered later—but, if we use this method at all, we must read at the first transient change of color with phenolphthalein.

The other method for estimating combined hydrochloric acid is based on the hypothesis that alizarin changes from olive to purple when we have saturated everything but combined hydrochloric acid. Thus, by subtracting the dimethyl from the alizarin end-point, we get organic and phosphatic acidity while, by subtracting the latter from the phenolphthalein end-point, we get combined hydrochloric acid. But, very commonly, we find by this method, a relatively enormous amount of combined hydrochloric acid when the free HCl is low and when everything points to a deficiency of hydrochloric secretion and digestion in general. I have even seen instances in which the final color change with dimethyl occurred at a point beyond alizarin. Dr. G. H. A. Clowes, of Buffalo, has published in the *American Journal of Pharmacy* for June, 1903, an interesting article* on the estimation of phosphates in chyme depending upon the fact that the alizarin end-point occurs at the transition from H_3PO_4 to NaH_2PO_4 and the phenolphthalein end-point at the next transition from NaH_2PO_4 to Na_2HPO_4, while Na_3PO_4 is formed only in an excess of alkali. However, it is obvious that phosphates as well as combined hydrochloric acid lie between the alizarin and phenolphthalein end-points and, in many cases, as when phosphates are administered medicinally, this disturbing factor is very important.

The general consensus of opinion with regard to tritrations of chyme, is that the estimation of free hydrochloric acid is approximate, the estimation of total acidicity quite exact, and that the alizarin or sodium tungstate methods are very inexact, though better than nothing. This sentiment is significant, as some clinicians are disposed to draw very fine lines with titrations and, in particular, Dr. Knapp's interesting article, in the MEDICAL NEWS of Nov. 14, 1903, is entitled "Why Not Absolute Precision in Chyme Analysis?" Even incineration methods are not regarded as absolutely precise without regard to the general fallibility of mankind, and titration methods must be accepted as merely approximate, though usually sufficiently accurate for diagnosis and treatment.

A very practical consideration is the amount of investigandum to be used for each test and what tests are to be omitted if the chyme is scanty. The old statement that 20 to 30 c.c. is the normal amount of residue one hour after a standard test breakfast, must have been due to inadequate methods of extraction. Within the last year or two, I have almost discarded expression and my roller tube-stripper and now rely on a bulb syringe with strong walls—such as is commonly sold to keep the population within limits. By alternate suction and moderate distention of the stomach with air, while the tube is held at various levels, one can remove almost every drop of chyme and can tell by the sound and the patency of the tube, when the extraction is complete. By this method, 40 to 100 c.c. may be taken as normal limits, one hour after a meal of 50 grams of bread and butter and 250 c.c. of water, or thereabouts.

Whenever possible, all manipulations should be upon the filtered chyme. It was formerly stated that the minute particles of unfiltered chyme held acid and therefore results were minified by working with filtrate. I believe this observation is mainly due to the fact that with unfiltered investigandum, one cannot tell just when he has reached an end reaction and thus has to add an excess. Sometimes the reverse is true. For instance, in vomited matter after a meal of brown bread, etc., the dimethyl test apparently yielded an unmeasurable trace of free hydrochloric acid. The filtrate showed 27 degrees (to the orange point).

As a rule, when very little material is available, the dimethyl test and the phenolphthalein test should be used in succession. If 10 c.c. cannot be obtained—as in some cases of mucous gastritis with little secretion but with good motility—the degrees are estimated from the actual reading by the rule of three. One cubic centimeter is sufficient for the tests for lactic acid, ferment activity and carbohydrates, bile, blood, etc. The next 10 c.c. I would use for my proteolysis test. (*See Journal American Medical Association*, March, 1901.) Afterward the alizarin and other tests may be applied and various experimental study may be made on cases of supersecretion.

As a rule, 10 c.c. should be used as an investigandum to avoid the experimental error which always attaches to readings made with small quantities and two or three tests made as accurately as possible, are of greater value than a number made with small quantities of chyme. There seems to be no objection to employing phenolphthalein in the same capsule with the investigandum previously used with dimethyl for the determination of free hydrochloric acid. Otherwise, the mixture of tints is liable to obscure the reaction. I have recently seen an article in which, with 5 c.c. as an investigandum, the author made four successive titrations in the same capsule, putting in one indicator after another. Such admixture of colors is too artistic for the plain digestive specialist.

Although advocating the use of dimethyl as a routine reagent for free hydrochloric acid, some of my critics, notably Dr. Knapp, in the issue of

* The article quoted is too technical for ordinary clinicians and contains one or two misprints which an inexpert chemist would not notice. The writer, with Dr. Clowes' kind permission, expects to take up this method from a clinical standpoint later.

the Medical News of November 14, 1903, have attributed to me a partisanship which I do not feel and have not tried to express. So far as I understand the chemistry of indicators, neither this nor any other can be an accurate measure of any one acid. In other words, the change of tint is a phenomenon of ionization and not at all a specific combination such as occurs in the ordinary reactions of inorganic chemistry. I was among the first clinical writers to call attention to the fact that the phloroglucin-vanillin reaction occurred with any mineral acid and not alone with hydrochloric acid and, in general, whatever indicator is used, we must expect that vegetable acids will act analogously to mineral, but to a less degree. There is no satisfactory definition of acidity, but, in a vague way, we can conceive of it as due to the position of hydrogen in a molecule. Not everything that we customarily write with an H or OH separate from the rest of the molecule, is an acid, and some substances are amphoteric, acting as acid or otherwise, according to the indicator used. Carbolic acid, for instance, acts as an acid with comparatively few indicators.

In choosing among the various indicators which mark the turning point from free acid to acid salt or organic combination, we must be guided by empiricism as to the one which produces the most distinct change and the change least influenced by weak acids. We must not overlook the fact that a delicate, limited indicator may react when a more general but less delicate indicator will not. Thus, it occasionally happens that by using benzopurpurin or Congo red and resorcin-sugar, we get the paradoxical result: "No free acid, trace of free hydrochloric acid."

The discrepant reports of different observers with regard to the virtues and faults of the various indicators used, may, perhaps, be explained by individual differences in visual physiology or, possibly, by actual histologic variations in the rods and cones. It is absurd to suppose that any one would wilfully misrepresent what he saw and almost equally absurd that one working day after day in chemic problems of the same general nature, should make a blunder of observation. We know that there are well-marked variations in tone-perception and that marked color blindness exists. It is reasonable to suppose that in dealing with delicate changes of tint, different eyes should literally see things differently.

Every little while some advocate turns up with an indicator that we have discarded several years ago. In the Medical News of January 27, 1894, I published a little scheme for the qualitative examination of chyme, including a study of some reactions with indicators. Congo reacts blue, not only with hydrochloric acid and the mineral acids generally, but with lactic, acetic and butyric acids, the last giving a turbid blue. Tropeolin OO changes from what I would call magenta to yellow, in titrating against a mineral acid, with alkali. Lactic acid restores the magenta color, but neither acetic nor butyric do so in any reasonable amount. Thus, tropeolin is a better indicator for hydrochloric acid than Congo. These statements I have just verified, in view of the contradictory statements which have been made. Tropeolin is, at least for me, an undesirable indicator because the tint with acid is obscured by a brownish or yellowish cast of the investigandum and because the end-point is difficult of detection. Using dimethyl, on the other hand, we start with an unmistakable cherry-red and, while the change to orange is a little vague, it is not more so than the single color change of tropeolin. The final color change of dimethyl is almost identical with that of tropeolin but we have two reactions as a check on each other, in the former instance. In the absence of a large amount of fermentation acidity, the dimethyl and tropeolin tests will come out about the same. With my method of noting the change from cherry to orange, for example, in one sample the total acidity was 68 degrees. By dimethyl, the hydrochloric acid was 24 degrees, the final discharge of color occurring at 36 degrees. By tropeolin the hydrochloric acid was 22 degrees. Even a considerable amount of acetic or lactic acids, or both, will not restore the cherry red of dimethyl, but will change the color back from yellow to orange.

Really, it makes comparatively little difference which of several indicators is used provided one understands that the results are approximate and reliable only for comparative purposes. With low hydrochloric acid and high fermentation acidity, the readings of the burette are very inaccurate although they indicate the principles of therapeutics clearly enough. Whenever it is necessary to have accurate tests made, the chyme must be incinerated.

PHYSIOLOGICAL AND CLINICAL ASPECTS OF HYDROTHERAPY WITH ITS SPECIAL REFERENCE TO THE TREATMENT OF PYSCHOSES.*

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"Hydrotherapy includes the application of water in any form, from the solid and fluid to vapor; from ice to steam, internally and externally."

The use of water in the treatment of disease is not new. Hippocrates, we read, made intelligent use of the stimulating and relaxing effects of heat and cold. Coming down through medical history we find the greatest physicians exponents of the remedial use of water. Among them are Celsus, the physician to Ovid and Fabius Maximus, Paulus Æginita in the eighth century and Van der Huyden in the twelfth century.

In 1697 a book published by an English physican named Floyer attracted the attention of the best medical minds of Germany, and adopting his

* Read before the Morristown Medical Club, October 28, 1903.

ideas water was used in the treatment of fevers and the exanthemata, but it did not become popular until the "peasant water doctor," Priessnitz, in 1840 attracted a considerable following and so spread his ideas throughout the world. To Prof. Wilhelm Winternitz, is due the credit of putting hydrotherapy upon a scientific basis. He has devoted his life to the study of its great clinical value and the scope of its application, and has thus gathered about him at Kaltenleutgebene over two thousand patients. In 1861 Ernest Brand published his results with cold baths in the treatment of typhoid fever. At this time France and Italy were also making progress in this line, though many times delayed because of the unwonted notoriety given it by lay practitioners and fanatics. This was especially so in England, where even to-day hydrotherapy is not generally popular. In the United States the early champions of hydrotherapy were Drs. Abram Jacobi, of New York City, and Hiram Corson, of Pennsylvania, followed by Dr. Simon Baruch, who has done most for its scientific progress and development, until to-day our hydriatric institutions are the best equipped in the world and in them the exact prescription of the physician may be carried out by skilled nurses. Fortunately it is not necessary to have expensive apparatus, and gratifying results may be obtained with the ordinary household toilet accessories. But technique must be zealously guarded.

Being much interested in this subject I have at the New Jersey State Hospital at Morris Plains fitted up an apparatus for douching by which the temperature and pressure could be regulated and with packs, drip-sheets, bed-baths and hot-air baths, have during the past eighteen months done considerable work among the insane, especially in melancholia, dementia præcox and psychoses of a neurasthenic and hysterical type, and I believe that no other single therapeutic measure so thoroughly tones the nervous system, so stimulates the circulatory apparatus and so satisfactorily revives organic activity.

When we think of the vast area of the skin, its structure and function, with its myriad of nerve endings, its muscular and elastic tissues, its glands and vessels, all of which are directly accessible to the effects of this agent, we may get a glimpse of its physiological action and have something of an understanding of the channels through which we may obtain more definite physiological results.

From a hydrotherapeutic standpoint we deal with the skin as a sense organ, as an excretory organ and as a heat regulator. The physical properties of water are such that the functions of the skin are directly affected by this form of application of heat and cold. From ice (32° F.) to steam (212° F.) we may use this agent with perfect mechanical control and definite knowledge of its physiological effects. By reason of its fluidity we have the advantage of being able to apply it in any desired manner, thus definitely affecting local or general areas, while the application of pressure enables us to obtain the very important mechanical irritation of the nerve-endings and other structures of the skin. It is very interesting to study the various results possible with such a flexible agent, from the awakening to the destruction of cell activity.

Primarily the action of water, no matter how used, is that of an irritant to the peripheral sensory nerve-endings, and in this reflex way affects the circulation, respiration, temperature, tissue change and secretion.

Reflex irritation of the sensory nerves affects the circulation in two ways—by acting upon the heart muscle increasing its power, and by changing the caliber and tone of the vessel walls. This applies to both topical and general applications. Cold causes a primary acceleration of the heart's action, followed by slowing and added force—increasing the heart's nutritional period in the same manner as digitalis. Heat causes a primary slowing of the heart's action, followed by acceleration.

Acting on the cutaneous vessels, both heat and cold cause a primary contraction, followed by secondary dilatation. The secondary effect of cold is dilatation, accompanied by increased volume, tension, tone and blood pressure. This is due to stimulation of the inhibitory nerves. A beautiful example of this is found in the person who goes out into the cold rain or hail; first the face is blanched by capillary contraction, after which it assumes a rosy red hue due to capillary dilatation and a more active circulation. If the stimulation is continued or excessive, however, temporary paralysis of the vessel wall follows. The secondary effect of heat is dilatation, accompanied by increased volume but decreased tone, tension and blood pressure. This is due to relaxation of the vessel walls. Therefore we may liken the effect of cold to an active congestion and that of heat to a passive congestion.

The composition of the blood is also altered. Cold causes an absolute increase of both white and red cells in the peripheral circulation, the increase of white cells being very marked. This is probably due to increased force of the circulation and altered tone of the vessels which forces the blood cells from organs in which accumulation has taken place. The maximum increase in red cells has been stated as 1,860,000, while the white cells have increased threefold, and the hemoglobin fourteen per cent. These alterations persist for from one to two hours, generally being at their height at the end of one hour. Heat causes a decrease in the number of red cells, a decrease in the percentage of hemoglobin and a slight increase in the number of white cells.

Since the heat regulating function of the skin has to do with the vessels, nerve-endings and glands, we may pass it over as the conclusions are obvious and it is by no means as important as the stimulating effects on the nervous and vascular systems.

Scientific experiment has shown that tissue change and its consequent secretion and excretion

are greatly enhanced or controlled by properly applied hydriatric procedures.

The following are a few of the most important hydriatric procedures: Simple ablution, which consists in the application of water by the hand or what not, without much friction, useful in febrile conditions and as a measure introducing more vigorous proceedings. It is apropos to say here that friction of the skin by the bare hand or the hand covered with cloth is important to the success of any hydriatric procedure. By friction, reaction is brought about, for the nerve-endings seem to need a certain amount of mechanical irritation. The non-observance of this principle is the cause of failure with those who have given up this method of treatment. It is also necessary in any hydriatric procedure to place a cold compress or turban upon the head, and this to be changed frequently.

The *half bath;* in which the water in the tub reaches just above the pelvis and is kept at a temperature of 85° to 70° F. The nurse first bathes the face and then rubs the body with one hand and with the other dashes water on the patient, who, if he is able, keeps up friction on the front of his body with his own hands. This measure is one degree further than the ablution and serves to dilate the peripheral vessels more than does the pressure-laden full bath. It should last from five to ten minutes—as the physical signs indicate—after which the patient should be rapidly dried in a previously warmed linen sheet or blanket.

Next in order for consideration is the *affusion.* In this procedure water is dashed upon the body with more volume and greater force, as from a pitcher or pail at some height. It is of short duration, but the intermittent character of the thermomechanical irritation causes a better reaction than either of the before-mentioned measures. Thus this procedure is of use when we wish more shock and stimulation, as when in the delirium of acute diseases we have a tired heart, inactive vessels and inefficient respiratory effort. The temperature of the water may be from 70° to 45° F., varying within this range in accordance with the symptoms presented.

The *sheet bath* must always command studious attention. This bath may be used in its different forms—cold rub and drip sheet—as an antipyretic, stimulating or sedative measure. In the simple cold rub the sheet wrung from water at 68° F. is wrapped about the patient snugly; first underneath and then over the arms and about the shoulders. The patient is then rubbed vigorously until warm and dry. It is customary, for the sake of better reaction, to precede this measure by previously warming the skin. This method is used for its stimulating and tonic effect. When an antipyretic action is desired, water of the same or lower temperature is poured or sprinkled upon the sheet and friction kept up until the part is again dry. This method is generally followed with the patient in bed. For a sedative action, the drip sheet is used—that is, the sheet is wrapped around the body without being wrung out and friction and slapping alternated with pouring, over the head and shoulders, water at a temperature ten degrees lower than that of the sheet. It has been found that having a patient stand in water from 100° to 90° F. aids greatly in asthenic cases.

A universally useful and valuable measure is the *wet pack.* In this a woolen blanket is placed on the previously protected bed and on this is laid a well-wrung out linen sheet. The patient, wearing a cold turban, lies upon the sheet and is wrapped snugly and so that no two skin surfaces come together. The arms are raised and one-half of the sheet is brought across the upper portion of the body and tucked along the trunk, the lower portion being placed between the legs, then the arms are brought to the sides and the remaining half of the sheet is brought over and tucked snugly about the entire body. The blanket is now wrapped firmly around the body, covering in the shoulders and the feet, great care being taken to prevent a layer of air between the blanket and the sheet. Another blanket may now be placed over the patient and tucked underneath him, accurately fitting the body curves and giving him the appearance of a mummy. The sheet should be wrung from water at a temperature of from 70° to 60° F. When it is desirable to use a higher temperature, as from 100° to 110° F., for excretory purposes, it is better to use a thin flannel blanket in place of the sheet as it more readily retains the heat. A pack of short duration—one-half to one hour—is markedly sedative, causing, after reaction has set in, muscular relaxation, cerebral anemia and oftentimes sleep. In longer duration, say one to five hours, the pack acts also as an excretory agent, the desired elimination being aided by the ingestion of several glasses of water during the pack. Cell activity is increased, resulting in combustion of autotoxines, making them soluble and easy of elimination. The skin is filled with heated blood and thus excretes more actively as the odor of the sheet testifies. The wet pack is also of use as an antipyretic measure and when this result is desired it should be frequently repeated and of short duration, as from ten to thirty minutes. It is also of great use in chronic diseases exhibiting deficient tissue change and in neuroses as a measure preliminary to the invigorating half-bath or douche. In this connection it is well to bear in mind that the wet compress is simply a miniature pack, and when used for throat or pulmonary disease or for maintaining the effect of other antipyretic and stimulating agencies, is very pleasing in its results, as will be attested by all patients to whom they have been properly applied.

The *cold full bath*, especially the Brand bath in typhoid fever, is so well known that I need not make mention of it here. The *warm full bath*, aside from its analgesic effect, it attended with highly gratifying results in the treatment of children and babies, where at a temperatue of from 100° to 95° F. and of a duration of ten minutes,

it is a most useful antipyretic and sedative. Care must always be taken to keep the bath at the prescribed temperature by adding hot water from time to time.

No article upon hydrotherapy would be in any sense complete without reference to the *douche*. In the use of the douche atmospheric pressure takes the place of direct friction and as the size and shape of the stream can be regulated as well as the temperature and pressure, it becomes a scientific method of application. The mechanical irritation of the douche is so marked that it readily overcomes the effect of cold and even makes a moderately warm spray of short duration, stimulating. Reaction is found much more active if the douche is preceded by some measure for warming the skin surface, such as the pack or hot-air bath, thus increasing the shock and rendering the stimulation consequently greater. It is also a very useful measure for restoring tone to the vessels of the skin after packs or other relaxing baths. It prevents chilling, allows the patient to take exercise in the open air and receive the benefit of deepened respiration, more active circulation and awakened metabolism. The douche should be limited to from twenty seconds to one minute, the temperature from 45° to 105° F., the pressure from fifteen to thirty pounds. In the douche, as in other hydriatric proceedings, we have a great power for evil as well as for good. The exact technic must be followed in order to assure success. Each case demands separate and careful study for the reason that by varying the temperature, pressure or duration, widely different effects are possible. It is generally necessary to educate most patients to the point where the desired measure may be used. The Scotch douche consisting of alternating streams of hot and cold water, is a measure which has found much favor as a general stimulant and as an excitant of tissue change.

The various hydriatric measures adopted in a given case will depend upon the disease, the condition of the patient and the particular result desired.

In measles, when the temperature is high—103° F.—and the nervous system shows the effect of toxemia, Dr. Baruch advises a full bath at 95° F., lowered gradually to 75° F. if necessary to obtain the desired effect; in severe cases showing delirium, stupor, muttering and restlessness the half bath at 95° F. with cold affusions at 75° F., repeated every three hours, or more often if necessary. These baths should be brief, for children having measles do not bear well the abstraction of heat.

In scarlet fever during the acutely toxic stage, practically the same procedures are recommended. If a severe nephritis is present, a full bath at 95° F., gradually cooled to 90° F., is given, lasting from five to eight minutes. The patient is then placed in a warm blanket pack for an hour or longer to promote diaphoresis, cold water being freely given to increase diuresis.

In pneumonia we deal with a very severe toxemia acting upon the nervous system and nothing so successfully combats these symptoms as properly applied hydriatric measures. In children a full bath at 95° F., with active friction, will strengthen the heart, deepen respiration, reduce the temperature and refresh the child. Those baths may be given every three hours for a temperature of 103° F. and in the meantime their effect maintained by a chest compress. If the nervous symptoms are very marked the child may be held in a half bath of 100° F., while affusions at 75° to 60° F. are used and these followed by a rapid drying with friction. A fact to be remembered, however, is that children do not bear shock nor chilling well and that the temperature of pneumonia is much more easily reduced than that of most other infections. In the pneumonia of adults Dr. Baruch does not advise baths but uses the cold chest compress at 60° F. He finds that this measure sufficiently reduces the temperature and being applied as often as indicated aids in the elimination of toxins, stimulates the heart and has a decided effect on the course of the disease. Some of the most gratifying results of hydrotherapy are obtained in the treatment of enterocolitis of young children, where as a means of overcoming the nervous exhaustion and inanition the bath or pack has come to have a value as great as in typhoid fever. Prostration and marked nervous symptoms are often rapid and severe. The skin is white and covered with clammy sweat, while the rectal temperature runs from 102° to 106° F. Here the carefully graded bath is of much value. The child should be put in a full bath at 90° F. The face and head are bathed with cold water; gentle friction is kept up and the water gradually reduced to 80° F. If more shock is desired, because of severe nervous symptoms, affusions at 60° F. may be used. The bath should not last over ten minutes. Afterward, if the temperature has been high, the child is wrapped in a sheet covered by a blanket and allowed to dry. If the temperature has been low, the child is gently dried and placed in bed. When the child has convulsions or there are objections to the baths on the part of the parents, the wet pack, from 70° to 60° F. may be used, lasting from fifteen minutes to twenty minutes and repeated if required. After this pack the patient should be laved with a cloth partially wrung out in water at 70° F. One has but to observe the pulse in such conditions become slower and regular, respiration deeper, the eyes brighter and animation and color return, to be satisfied with the value of these measures.

In my more recent work among the nervous and insane I have found the wet pack at 65° F. or the full bath at 95° to 105° F. very useful in excited cases and in insomnia, and have at present a case of mild excitement with confusion in which the patient seems to change to nearly the normal state while in the pack. She exhibits a slight temperature—100° to 101° F.—a quickened high-tension pulse—95 to 100—extensive herpes labialis, foul breath and inactive bowels, making

a perfect picture of mild toxemia. This patient is placed in a wet pack for three hours each morning and afternoon and her colon irrigated daily with normal salt solution at 110° F. She is fast losing her toxic symptoms and her excitement is daily becoming less marked.

The series of twenty-six cases which I have collected for this paper, which were all under my treatment, are classified as follows. Acute melancholia, acute melancholia with agitation, dementia præcox, hysteria, puerperal insanity.

Most prominent among their mental symptoms were depression, slowness of thought—even to apparent lack of it—little or no interest in self or surroundings, delusions of a painful nature, confusion, depression with agitation, hypochondriasis and insomnia. The most marked physical signs were lack of nervous and muscular tone, sluggish circulation with an almost constant accentuated second heart sound, no appetite, and in some instances even refusal of food, loss of weight, muddy, greasy, acne-covered skin, intestinal fermentation and constipation. The urine was scanty but showed no constant pathological change except in several cases a very slight trace of albumin, which disappeared as metabolism improved.

Where necessary in these cases, because of their weak physical condition or mental apathy, extensive enough to cause them to be kept in bed, treatment was begun with an ablution at 95° F. with active friction, the temperature being reduced 5° F. daily until 65° F. was reached. When the patient became used to this measure and reaction became ready and constant she would be given a sheet bath at a temperature of 60° F. This procedure causes more shock and prepares the patient for the vigorous stimulation of the douche. Those cases which showed depression with agitation and a run down physical condition but with a fairly active skin were given a wet pack at 65° F., lasting for from one to one and one-half hours, from which they were immediately given a general fan douche at 60° F. and twenty-five pounds pressure for twenty seconds, followed by drying with friction and exercise in the open air. Those cases exhibiting stupor, flabby, greasy, acne-covered skin and congested extremities were given the same form of pack but it was continued for from two to three hours, water being given freely during the pack, and where the kidneys were not secreting well the colon was irrigated just before the pack with normal salt solution at a temperature of 110° F. In the cases which exhibited only depression, loss of weight and lack of general muscular and nervous tone the douche alone was used. Having been accustomed if necessary by the use of the ablution and sheet bath, the patient was sprayed for one minute at a temperature of 95° F. and fifteen pounds pressure, then a fan douche was given for twenty seconds at 45° F. and twenty-five pounds pressure, followed by drying with friction and exercise in the open air. The reaction after such treatment is very marked. The respirations are deepened, the pulse is slowed and its tension reduced, the skin glows to a red hue, showing that the reaction is perfect, and the patient feels a general sense of well being.

Resulting from this treatment, the patients become brighter, more interested in things about them and in their own welfare. Agitated cases became calm, sleep was natural and dreamless, delusions were less fixed or gradually faded away and the normal mental state was often restored. The physical condition greatly improves, the appetite increases and with it the body weight—in the average of cases from ten to thirty pounds. The pulse grows strong, regular and of normal tension, the bowels regular and the skin healthy. A notable fact is the improvement in general muscular and nervous tone. The muscles take on firmness and the body curves or feature curves become round and full. This condition is so marked that on going through the wards one can detect from their facial appearance those receiving hydriatric treatment.

In connection with this treatment the patients' habits were regulated; they were given one egg in six ounces of milk every two hours during the day, besides three meals of the regular diet, if they were able to take it. After an initial purging with calomel a daily stool was obtained with tonic doses of cascara sagrada, unless intestinal fermentation was marked, when colon irrigation with water at a temperature of 110° F. was practiced, and they were made to take water internally at regular intervals as a means of aiding in the general process of elimination. Strychnine in tonic doses or the house tonic, consisting of iron, quinine and strychnine, was also given when indicated. I do not claim for hydrotherapy wonderful or miraculous results, but I firmly believe this method of treatment a most invaluable adjunct to hygienic and medicinal measures.

Of this series of cases nine recovered, twelve were greatly improved in both mental and physical health, and five, while they evidenced no mental improvement, gained in general physical health.

MEDICAL PROGRESS.

SURGERY.

Suprarenin in Surgery.—An interesting article by B. Müller (Münch. med. Woch., Feb. 2, 1904) deals with the use of suprarenal extract in major surgery. The preparation known as suprarenin was employed in almost all cases and many experiments convinced the author of the intense action of this substance upon the smaller vessels. If the mucous membrane of the mouth is moistened with a 1-1,000 solution, a pale yellow spot will result; injected into the skin of a dog in a dilution of 1-10,000 an incision could be made without the loss of a single drop of blood and a microscopic examination gave evidence of extreme vascular spasms. Laparotomies can be easily performed, but vessels more than one millimeter wide must be ligated despite the fact that their media often contracts and shuts off the

lumen after division. The pale condition of the tissues enables one to detect and avoid nerves without much trouble. In very bloody operations, such as strumectomies and amputations of the breast, suprarenin is invaluable and in the much-feared resections of the liver it must be regarded as indispensable. In order to avoid injury to the larger vessels and stopping-up of the needle, this is constructed with a blunt, closed end and two lateral openings. Care must be taken to incise within the anemic district and so that more of this lies centripetal to the knife than centrifugal. Spurting from larger vessels is avoided by manual compression of the liver, central to the cut. After-hemorrhages were never observed, since the vessels are effectually shut off by thrombi before relaxation occurs. In one case the stump was examined two days after operation. The process of healing was found absolutely normal, both macro- and microscopically and necrotic areas could not be found. Extirpation is more difficult than resection, since it is often impossible to tell how deeply one must go into the liver. In small cancer nodules or gummata the excision is wedge-shaped and the needle is introduced in the direction of the two incisions. More trouble will be experienced where the gall-bladder is to be removed, especially where the tumor has already extended upon the liver. Large vessels are encountered here in abundance, but suprarenin, by suppressing parenchymatous oozing, allows these to be seized with great ease—a point of great importance in cachectic individuals. In general it may be said that a strength of 1-1,000 to 1-2,000 has an almost instantaneous effect and is best for liver and kidneys; one part in 5 to 10,000 is sufficient for skin, fat and muscle and acts in two minutes. Up to 10 c.cm. of a 1-1,000 solution may be injected without fear of intoxication. Boiling is the most efficient means of sterilization. Weak solutions will decompose in time, but a pink solution is just as active as a colorless one. A 1-10 or 20,000 solution stimulates the heart and one cubic centimeter may even be injected into the myocardium.

New Appliances for Local Hyperemia.—The use of a suction apparatus to produce a local hyperemia has first been suggested by A. BIER (Münch. med. Woch., Feb. 9, 1904), who has devised an ingenious apparatus which can be closely fitted over any joint. As soon as the air is exhausted, the parts will redden and perspire so that the glass walls of the apparatus soon become cloudy. This suction has the same curative action as hot air; it relieves pain and renders tuberculous joints more supple without weakening those suffering from advanced anemia. Various orthopedic appliances can be placed in the apparatus to allow the patient to perform active motion with his diseased joint. The vacuum should not be so high for tuberculous joints as for chronic rheumatism, as the softened bones may be injured. The method is not applicable to acute affections. Another device recommended by the author is a hot-air apparatus with fine movable point, especially indicated in the treatment of trigeminal neuralgia. One should not become discouraged if the effect is not instantaneous, but even obstinate cases were completely relieved after daily applications during two or three months.

Report on Two Cases Operated on by Lorenz.—Two children which were operated on by Lorenz, in San Francisco in 1902, were kept under observation by H. M. SHERMAN (Jour. Am. Med. Ass'n, Feb. 27, 1904), who now publishes a report of their present condition. The plaster dressing was removed in May, 1903, six months after application and X-ray pictures taken and a careful examination made. In the first case where a boy of five years had presented an anterior dislocation, the head was found in a subcutaneous position in the outer part of Scarpa's triangle, while the trochanter was somewhere behind and internal to it. As the condition was unfavorable, the cutting operation was recommended. The latter disclosed that the capsule of the joint had been torn by the manipulations and the head of the bone was left among the muscles at the outer part of Scarpa's triangle. The head was replaced in the very shallow acetabulum, but very little capsule was left in front of it—a serious loss, as the body-weight must be carried by the capsule of the hip-joint, where an anatomic reduction cannot be made. No benefit therefore apparently resulted from the Lorenz method. The second case presented a posterior dislocation and after the cast was taken off examination showed the head to be in the outer part of Scarpa's triangle and very near the skin. No improvement had therefore taken place and the limb was probably shorter than before. Operation was not undertaken.

Case of Staphylococcus Sepsis.—An instance of this condition closely resembling typhoid fever is reported by O. NIEDNER (Deut. med. Woch., Jan. 29, 1904). As the disease was present in his associates, typhoid was diagnosed but all attempts to cultivate bacteria from the blood were negative. Delirium developed on the tenth day and on the fifteenth swelling of the parotid glands was present from which pure cultures of staphylococci were secured. Swelling then also developed over the right trochanter and elbow. The man died two days later. A month previously the patient had fallen from a ladder striking on the right side. The leg became increasingly painful and two weeks later the symptoms of typhoid developed. The parts were actively massaged. The autopsy showed changes in the intestinal lymphatic system which closely resembled those of typhoid and therefore accounted for the clinical course of the disease. The injury had induced extravasation in the right gluteus maximus muscle, which became infected through the skin and resulted in the formation of an abscess, which was situated too deeply to be discovered by palpation. The massage which was done evidently drove the infectious material into the circulation and resulted in a general infection, which rapidly became fatal.

OBSTETRICS AND GYNECOLOGY.

Early Signs of Pregnancy.—The means of diagnosing pregnancy in the early stages are none too convincing, so that any addition to our knowledge of this subject should prove interesting. H. L. E. JOHNSON (Jour. Am. Med. Ass'n, Feb. 20, 1904) describes a physical sign which he has noted in a large number of cases prior to and including the third calendar month. This sign is observed as early as the third week and consists of an intermittent softening and hardening of the vaginal portion of the cervix uteri with, in many cases, a change of color, from a pale violet to the normal pink hue, or the reverse. The alternate softening and hardening are readily detected by digital touch, while the changes in color may be seen through the speculum. These signs are probably the early manifestations of what is subsequently recognized as the intermittent contractions of the pregnant uterus and are probably due to a necessity for some change of modification in the uterine circulation incident to the nourishment and growth of the impregnated ovum through physiologic intermittent congestion of the generative system. This sign the writer has never observed in any other normal or diseased condition and reports a number of cases where the diagnosis of pregnancy was subsequently positively demonstrated where at first it was entirely unsuspected by the patient.

Modification of Porro's Operation.—Porro's operation, first undertaken in 1876, is thus described: After the uterus has been emptied as in an ordinary Cæsarean section, it is drawn out of the abdominal wound and surrounded by a wire at its lower segment. The uterus with its appendages is then cut away. William H. Horrocks (Brit. Med. Jour., Feb. 13, 1904) suggests a modification of this technic, which is upon the lines sometimes employed in the treatment of uterine fibroid. In considering the choice of operations between the Cæsarean section and Porro's operation, there are certain points in favor of the latter technic. In general one or the other of these operations is indicated when the deformity of the pelvis is so great as to render delivery without craniotomy impossible and where some tumor growing from the cervix or sacrum blocks the pelvic cavity. The question of leaving the uterus has always seemed a doubtful point, although cases have been recorded by French surgeons in which several operations have been performed upon the same woman. Of late it has been customary in performing Cæsarean section to sterilize the woman by dividing the Fallopian tubes. If this be done, the settlement of the question resolves itself into a determination as to whether more shock is produced by the removal of the uterus or by its simple section, suture and destruction of the Fallopian tubes. The technic of the author's modification is as follows: Before drawing the uterus out, it may be necessary to ligate the broad ligaments on each side and divide them. After delivery of the uterus through the wound, the peritoneum is stripped off until the neck of the uterus is reached by the finger. The uterine artery is found on each side, and a ligature thrown around it, one side only being tied. The anterior wall of the uterus is now exposed and the muscular tissue torn through with a blunt director down to the membrane. These are now opened sufficiently so as to easily remove the child. As soon as natural respiration is established, the cord is clamped, divided, and the child delivered. The cord, with the forceps is now returned into the uterine cavity, no attempt being made to remove the placenta or the membranes. A flat sponge is packed into the uterine cavity and the opening drawn together. The second ligature is now tightened and the uterus divided as low as possible. The stump is then ligatured with a double set of sutures. A sound should be passed into the bladder to determine its position before attempting to perform the uterine stump. The pelvis is now carefully dried and drainage may or may not be established through Douglas pouch. The special point in this operation is the small amount of shock due to the infinitesimal hemorrhage. The question of tightening the second ligature on the uterine artery before extracting the child is as yet not positively answered.

Puerperal Sepsis.—Even in this hour of perfect asepsis, every one is glad when the third day is over. Peter Horocks (Brit. Med Jour., Feb. 13 1904) states that a hundred years ago parturition was so often followed by fever of some kind that Nisbet defined pregnancy "as a certain inflammatory disposition of the body or nearly approaching to it." It was the rule at that time for the woman to run a temperature during the puerperium. It was looked upon as unavoidable and due to the increase in the inflammatory tendency of the blood. Inasmuch as a woman may develop a temperature after she has had a child from any cause that will produce fever in a non-pregnant woman, it becomes necessary in the first place to eliminate all possible causes other than those peculiar to that state. In other words, there is a difference between fever of the puerperium and fever in the puerperium. Strictly speaking, puerperal sepsis includes the following: (1) Puerperal fever or puerperal septicemia of the worst and generally fatal type; (2) puerperal sapremia, which is usually accompanied by an offensive discharge and which is generally recovered from; (3) puerperal pelvic cellulitis, also generally recovered from; (4) puerperal pelvic peritonitis, non-fatal usually; (5) puerperal pyemia, often a late stage of any of the preceding. Fatality depending on virulence of sepsis. (6) Phlegmasia dolens. This is now believed by many to be due to sepsis. (7) Milk fever. Inflammatory; often transient; probably septic; non-fatal.

Fibroid Disease in Five Sisters.—For a family of nine sisters to furnish five examples of fibroid disease and five of cataract is a morbid consensus of more than fleeting interest. J. MacPherson Lawrie (Brit. Med. Jour., Feb. 13, 1904) cites the history of these cases and asks what is the explanation of the peculiar predominance of the two factors—fibroids and cataracts. The pathology of fibromyomata is as little known as that of tumors in general. With regard to cataracts, it is known that impairment of nutrition of the lens increases with advancing age, and that these nutritive defects are apt to manifest themselves earlier in some families than in others. In other words, there is an inherited predisposition to that failure of repair which leads to the formation of opacities in the lens; this form of cataract, however, not being always an expression of senility. Is hereditary influence a factor in the causation of uterine fibroids? Is it possible that these two apparently dissimilar diseases are the resultant symptoms of some unknown underlying cause? The only connection between the uterus and the lens of the eye is a developmental one. The capsule of the lens originates from the same layers of the blastodern as the uterus. The lens is mainly the offspring of mesoblastic elements and is therefore in direct histological relation with muscular and vascular tissues. It seems, therefore, that the relation of cataract to fibroid in this family is either purely accidental, or else of such a profoundly obscure origin as to be extremely hypothetical. This remarkable series, however, would seem to furnish evidence to justify the suspicion that hereditary influence may be a causative factor in the pathogenesis of uterine fibroid tumors. he literature of the subject shows that the majority of writers do not ascribe any importance to the theory of hereditary transmission. The author is frank in stating that he believes this series to have its explanation in coincidence rather than in the expression of any hereditary tendency. This is a conclusion which is very tenable in view of the computation of Klob, who believed that four women in every ten have fibroids.

HISTOLOGY, PATHOLOGY AND BACTERIOLOGY.

Neutrophile Leucocytes in Infectious Diseases.—An article containing claims of a very revolutionary character has been published by J. Arneth (Deut. med. Woch., Jan. 21, 1904), with reference to the previously accepted notions of positive and negative chemotaxis for the neutrophile leucocytes. He believes that the importance and value of leucocytosis have been misunderstood and explains the phenomenon by asserting that the process is due to the destruction of the neutrophile leucocytes, the extent of which is dependent on the degree of infection or intoxication, the resisting powers of the organism and a number of other factors. He has made an extensive investigation of leucocytosis by the aid of a new technic, which however is not revealed at present. This shows that the number of leucocytes is no criterion as to their actual normal or

abnormal condition. The condition of the nucleus is the deciding element and according to its character the leucocytes may be divided into five classes. "Cytosis" is the new term applied to these various conditions and he distinguishes between iso-, aniso-, hyper-, hypo-, and normocytosis. In infectious diseases there is an aniso-hypercytosis (equal and unequal). The investigations also show that the relations between the various forms of leucocytes are much simpler than in the old classification. It is also claimed that the neutrophile leucocytes are the producers, but not exclusively, of the antibodies. Further and more elaborate details are promised in a new book about to be published by the same author.

Tuberculous Stenosis of the Intestine.—In at least half of the cases of stricture of the gut of tuberculous origin, according to A. W. Nikoljski (Samml. klinisch. Vorträge, Dec., 1903), the condition is a secondary one. It is mostly seen between the ages of twenty and forty years, and selects principally the lower part of the ileum. Multiple stenosis is just as common as the single variety. Strictures of the intestine lasting for years are in the great majority of cases tuberculous. The diagnosis is made more probable by the presence of tuberculous foci in the individual or a history of the disease in the family. In cases of stenosis in which the etiology is not clear, the cases are best regarded as tuberculous. The treatment is resection, and success depends on resorting to this precedure early.

Modifications of the Bacillus of Koch.—Certain irregularities noted during the study of the saprophytic characters of the tubercle bacillus have led J. Ferran (Arch. Méd. Expér., Nov., 1903) to attribute them to a variability in the characters of this organism. The special pathogenic characters of the non-acid tubercle-producing bacteria are best studied before the latter have been transformed into the bacilli of Koch. During their initial virulence these germs are not at all tuberculogenic; they acquire this property only after having been acclimatized to a life within the leucocytes. The demonstration of the constant presence of the non-acid tuberculogenic bacteria in tuberculous individuals, together with their abundance and saprophytic characters, deprives the bacillus of Koch of the right to be considered as the exclusive agent in spontaneous tuberculosis in man.

The Alloxuric Bases in Aseptic Fevers.—A research of extremely practical import was undertaken by A. R. Mandel (Am. Jour. Physiol., March 1, 1904) with the view of determining the relationship between the cleavage product of the nucleoproteids contained in the cell-nucleus, which products are commonly known as alloxuric or nuclein bases and the fevers of surgical origin. This investigation was suggested by the fact that in cases of surgical lesion there is a marked increase in leucocytes and this increased leucocytosis would lead to an increased production of alloxuric bases. The author found that in such cases there is a correspondence between the quantity of alloxuric bases eliminated in the urine, and the average temperature observed at the same time. As the alloxuric bases increase in amount the quantity of uric acid diminishes and vice versa. On injecting alloxuric bases into a normal monkey there is a rise of temperature. Inasmuch as coffee contains 1-3-7 trimethylxanthin (caffeine), the author sought to determine whether drinking a large quantity of a strong decoction of coffee, produces any rise in temperature. In his own case he found this to be so. He concludes from his observations that in fevers there is a distinct relation between the rise of temperature and the appearance of certain incomplete products of cell oxidation, as shown by the excretion of the alloxuric bodies, whose source must be looked for in the circulating leucocytes or the fixed lymphoid tissue and also probably in other tissue cells. It is noted that individuals, for instance, children with good reactive ability and high leucocytosis, usually show rather high febrile temperatures. The diminution of uric acid corresponds to the increase of alloxuric bases is attributed to the lessened oxidation of the latter to uric acid. It is assumed that in a number of pathological conditions the ability of the cells of the organism to oxidize certain substances is directly interfered with, and that this probably applies to the so-called aseptic fevers, as, for instance, rise of temperature after severe operations, anesthesia, convulsions, poisons, cachexias, of various forms. It is supposed that in all these cases the temporary or more permanent injuries to the cells inhibit their oxidation ability a shorter or longer period.

THERAPEUTICS.

The Climate of Long Island.—The proximity of Long Island to the greatest center of population in this country, and the increasing use of its territory as a resort and place of residence, make valuable any study of its climatic features, so remarks W. H. Ross (Brooklyn Med. Jour., March, 1904). It is for the most part a dry sandy plain, through the center of which runs a range of hills from 100 to 400 feet in height. With only 1,682 square miles of territory it has over 250 miles of water front. The island is made up mainly of sand and gravel, with thin strata of clay at varying depths. This dry, well-drained soil modifies the climate as regards fogs, the latter being more frequent over a wet, clayey soil than over the former. During a period of ten years, the mean summer temperature was 70° F., and that of winter, 30°F. This was at Brentwood in the pine belt and about the center of the island. The mean yearly temperature was 51.8° F., compared with 45° F. for the entire State of New York, 52° F. for the city of New York, and 52.7° F. for Atlantic City. The average temperature of the island for the month of July is three degrees warmer than for neighboring Nantucket, but there is a difference in the relative humidity of 7¾ per cent. in favor of Long Island. This relatively low humidity is one of the striking features, the average for the year being 72.75 per cent., while Atlantic City has 80.5 per cent., and San Diego, 69.5 per cent., only 3 per cent. lower than that of Long Island. The amount of sunshine forms a valuable feature, the average being about three hundred days per year—more than any of the neighboring resorts. Pine forests cover a considerable area, and the yellow pitch pine is indigenous to this region. The climate of Long Island is favorable because of its low altitude in increasing functional activity of circulatory organs; in convalescence from acute diseases, and in surgical diseases to accelerate tissue changes; for all invalids who cannot bear great changes of temperature; for pulmonary tuberculosis because of its pure air, equable temperature and pine forests; for all nervous troubles requiring relaxation, particularly in insomnia due to nervousness.

Podophyllin in Anchylostomiasis.—As the result of observation and experiment, Neumann (Deut. med. Woch., Feb. 4, 1904) claims that podophyllin has a specific action on the intestinal epithelium which interferes with the attachment of the parasite. The latter are then easily dislodged by the administration by the extract of male fern after the podophyllin has been given, or the podophyllin may be alone sufficient to expel them. The action of this drug is much more pronounced than that of calomel, and it is apparently a much safer drug for the purpose.

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DECREASE OF FOUNDLINGS' MORTALITY.

The solution of one problem in sociology or the kindred department of sociological pathology is almost sure to introduce another one of almost as great importance as the first, though its occurrence is usually quite unanticipated. This seems to have occurred with regard to the question of infant mortality in several attempts at its improvement in late years.

It is well known that the custom of insuring the lives of children under one year of age, for the purpose of enabling parents to have enough money to bury them in case death should take place, has been followed, especially in England, where the custom was at one time very common, by a distinct increase in the proportionate mortality of insured infants as compared with the uninsured. At first it was hoped that the insurance would be a distinct benefit for family life. Poor parents almost beggar themselves and frequently starve their children for a time in order to meet the funeral expenses of a dead member of the family. This evil it was hoped life insurance on children would prevent and might even ameliorate family conditions generally by leaving less room for anxiety. In order to prevent the increase of mortality that was noted, however, strict legal regulations had to be enacted with regard to insurance on children's lives and the infantile feature of life insurance development was practically obliterated.

A condition not entirely unlike this has developed recently in some of the large cities of this country as the result of the present well-meant efforts to save the lives of foundlings. As is well known the death rate among foundlings kept in large institutions is very high. When in addition to the risks of institution life there is artificial feeding, very few of the children survive infancy. In some places the state of affairs which developed was so dreadful that it well deserved the name invented for it by a caustic German physician, "Engelmacherei" (angel-making). In recent years, as the result of farming out infants to wet nurses the death rate among foundlings has been very materially decreased. As a matter of fact, according to some recent statistics there would seem to be less mortality among foundling children thus farmed out, than among the general run of the infantile population. We fear, however, that in this matter at least there has been some juggling with statistics, and that the figures given are those prepared for the purpose of producing an impression upon boards of charities, or legislative committees.

Now comes the interesting contrecoup to the decrease in foundling mortality. Those who are most closely in touch with the poorer classes of the population, mainly Italians, Bohemians and certain Russians and Germans, who now accept the care and wet-nursing of infants for a consideration, have been led to the impression that at times not sufficient care is taken of the children of the family itself, there being a definite knowledge that in case of the death of their own infant, the mother will be able to add quite an important increment to the monthly wage of the family by acting as a wet nurse for a foundling. This seems an entirely inadequate motive to suggest for a maternal neglect of her own child, especially by a woman only recently become a mother and as yet nursing. This is, however, just exactly the state of affairs that was found to exist in England as regards infantile insurance in cases where there was even less money involved. When infants are sickly and require a great deal of care, it is rather easy for a mother to neglect them sufficiently for death to take place, yet without absolutely resolving that she will shorten the life of her child. When then there is the additional motive that she will have another infant to care

for and be well paid for it, neglect may very readily take place.

It seems sure that the mortality among foundlings adopted by poor families is less than that among their own children. This, however, has been claimed to be due to the fact that when foundlings are placed in a family the family is in many cases visited regularly by a trained nurse who suggests to the foster mother the various precautions necessary to preserve the health of the child, or the infants must be brought for regular examinations when suggestions are made. It is understood, too, that in case the foundling does not do well in the family it will be taken away. This regulation especially is said to act as a wonderful help in securing the exercise of due care for the child. It seems unfortunate that some of this helpfulness of modern science cannot be exerted for all infants as well as the foundlings, but thus far it has been difficult to secure proper attention to advice with regard to such matters.

It would seem that some of this experience with regard to the foundlings and their presence in families may of itself have a highly educative value in bringing up mothers to the proper recognition of up-to-date methods in the care of their own children that will eventually compensate for the increased mortality now apparently due to the prospect of having a foundling to care for and being paid for it.

This is the most hopeful feature of the present outlook. The system established by the former Commissioner of Charities in New York City for the care of our foundlings has undoubtedly done very great good and saved many infantile lives. The problems in sociology, however, which it has brought up are deserving of careful study and will prove a fruitful source of material for the development of significant ideas with regard to the improvement of the condition of the poor.

SURGICAL TREATMENT OF PYLORIC CARCINOMA.

Although it is now twenty-five years since Rydygier, with marvelously bold stroke, first removed the stomach for malignant disease, and despite the fact that hundreds of variously designed resections have since been successfully accomplished, the fact remains that the percentage of deaths from gastric neoplasm is steadily increasing.

The efforts of the surgeon have in no way kept pace with the dread and unknown increment factor of this disease. This has led to continued effort on the part of abdominal surgeons to devise a means of meeting this increment by operative procedures less fatal and more effective than the early technics.

In the March number of the *Annals of Surgery* W. J. Mayo outlines a technic which, in his skilled hands, has yielded such admirable results as to justify the belief that a welcome light has been cast on this dark and difficult problem.

Mayo is convincingly explicit. He declares that temporizing with laboratory methods is a futile and dangerous waste of time; early exploratory incision being positively the only method suited to surgical diagnosis. He emphasizes his already reiterated belief that many gastric carcinomata spring from the bed of ill-healed ulcers. Best of all he negatives the dictum that was taught and believed for many years that the presence of a tumor of itself demonstrated inoperability. This, he holds, is by no means true. A small movable tumor in the pyloric region may be a favorable indication, it having been observed that patients with marked symptoms of gastric carcinoma but without any evidence of pyloric obstruction, prove on exploration to be the victims of advanced and hopeless disease. Early pyloric stenosis must, therefore, from now on, be regarded as a benignantly favorable expression of the malignant growth.

Eight months ago the author presented the technic of a composite operation which removed all save the dome of the stomach. Subsequent operations, in which he found the element of shock to be of considerable importance, led him to modify the technic until he now considers that he has found the desired medium between a minimum of shock and a maximum removal of the organ. This technic has been employed thirteen times with but one death.

Although the ultimate results of the operation are less encouraging by far than in those for the relief of mammary carcinoma, the condition is by no means hopeless. Kocher reports that no less than six of his cases have been well three years after operation, one after eight and the other after thirteen years being in the best of health. There is then, very emphatically, a *raison d'être* for trying.

The modification of Mayo's more radical operation seems to offer so much hope in a hitherto nearly hopeless condition that the technic cannot be too broadly circulated. It is only by continual iteration that the mass of the profession can be brought to a realization, at the present stage, at

least, that hunting for HCl and peering into foul-smelling pools of stomach contents for the elusive Boas bacillus, or cotton-bale yeast is nothing more or less than a gentlemanly way of putting a quietus on the unfortunate patient. Let the surgeon explore.

It is not the part of radical surgery but of the most conservative, modern medicine to make this appeal. Mayo complains that it is *not* the patient or his friends who turn aside the exploring knife but, in almost every case, the attending physician!

FACIAL NEURALGIA.

Probably no class of cases is more pitiable than those of the patients who come complaining of severe paroxysmal facial neuralgia, for which ordinary drugs give no relief. In the last twenty-five years at least a dozen different operations, each one of them more severe and more dangerous and presumably more radical than its predecessor, have been devised for the purpose of curing such neuralgias. All the various nerves of the face have been divided farther back at each successive operation until finally even the skull has been opened and the Gasserian ganglion removed. Needless to say this is an extremely dangerous operation. Even in the hands of experienced surgeons many patients have perished from it.

Very few physicians in practice in our large cities have failed to see some of these cases in which a number of operations have been done, each one affording relief for some time, but always followed by recurrence of the painful attacks. Even the removal of the Gasserian ganglion has not proved absolutely curative in a certain number of cases, and patients with marks of having had a large osteoplastic resection of the skull performed are still going to clinics complaining of their awful attacks of pain in the face. Usually they become the victims of the morphine habit, but even morphine fails to give relief after a time, and the coal-tar products are abused to an awful extent by them. Some few of these cases have yielded very surprisingly to quinine. Whenever there is a regular interval between the attacks of pain no physician or surgeon should think of recommending an operation until quinine has been tried. Even when the paroxysms come irregularly, if there is a history of the patient's having had malaria, quinine must be tried over long periods.

These cases constitute one of the most serious opprobria of modern medicine and surgery. It is extremely interesting, therefore, to find a new possible explanation of the origin of the pain and relief afforded by another form of treatment, which by no means involves very serious operation. At the last meeting of the Medical Society of the State of New York, Dr. Sargent F. Snow, of Syracuse, reported a series of cases of tic douloureux and other facial neuralgias which had been cured by treatment of the intranasal structures and of the accessory sinuses of the nose. In the discussion, Dr. Roe, of Rochester, said that his own experience confirmed that of Dr. Snow, and he felt sure that in most cases relief would be afforded by proper intranasal and auxiliary treatment. As in some of these cases serious operations upon nerves had already been performed with only passing success, these suggestions deserve the attention of all those who have these unfortunate patients come under their observation.

It is not difficult to understand that pressure within the nose itself and within the accessory sinuses may very well set up a very obstinately intractable form of paroxysmal pain. Extremely delicate nerve endings are pressed upon by fluid collections under pressure, and the result is sure to be painful nerve explosions. Whether these pathological conditions associated with the nose and its sinuses will explain all of the cases of tic douloureux remains to be seen. They certainly do include, however, a good many cases formerly thought to be facial neuritis of some form, and the apparently more enduring relief that can be afforded under the new and more correct diagnosis is of itself sufficient to make this a noteworthy advance in medicine, if further experience will confirm the observations so far reported.

ECHOES AND NEWS.

NEW YORK.

Examinations at Brooklyn Hospital.—At the examination held at Brooklyn Hospital for the appointment of four new internes, the following men from the College of Physicians and Surgeons were successful: First place, W. H. Lohman; second, J. T. Rose; alternate, F. H. Wilson. The third place was taken by a Syracuse student, and the fourth by a Bellevue man.

Dates for Hospital Examinations.—A partial list of the hospitals in this city which will examine applicants for interneships during March and April, are appended: German Hospital, March 21; Bellevue, March 24, 25, 26; Mount Sinai, March 24, 25; Methodist Episcopal of Brooklyn, March 26; Post-Graduate, March 28 and 29; the German Hospital and Dispensary, March 31; S. R. Smith Infirmary, April 1; Lying-in, April 4; St. Luke's and Presby-

terian, April 4 and 5; City, April 5; Roosevelt and New York, April 11; St. Joseph's, April 12; Ruptured and Crippled, April 13; General Memorial, April 14; Gouverneur, April 18 and 19; St. Francis', April 19; Lincoln, April 19 and 20.

Proposed Change in License of Dogs and Cats.—Assemblyman Ellis, on March 15, introduced in behalf of the New York City administration a bill transferring from the Society for the Prevention of Cruelty to Animals to the City Health Department all jurisdiction over the licensing of cats and dogs in the City of New York. The bill was prepared under the direction of Dr. Darlington. It is to be supported by arguments citing the growing belief that the suppression of the vagrant dog and cat nuisance in cities is a matter more vital to the health of the people than it is from the viewpoint of cruelty to the animals, and that contagious diseases are believed to be carried from house to house by cats.

Plan to Combine Dispensaries.—An adjourned meeting of the Board of Surgeons of the New York Eye and Ear Infirmary was held last Saturday at the Infirmary, corner of Second Avenue and Thirteenth Street, when the committee of three, composed of Drs. P. A. Callan, D. W. Hunter, and W. E. Lambert, appointed at last Thursday's meeting to inspect the Gouverneur Hospital reported to the Board of Surgeons. The committee spent Friday afternoon going over the trachoma pavilion, or contagious diseases of the eye wing, of the Gouverneur Hospital, with a view of determining whether it will be possible for the city's cases to be taken over by the New York Eye and Ear Infirmary. Through Dr. Brannan, representing Dr. Darlington, the Health Commissioner, overtures were made to the Board of Directors of the New York Eye and Ear Infirmary, with a view to closing the trachoma ward at Gouverneur Hospital, and sending the city's cases to the infirmary, to be treated in the Platt pavilion, which was closed on March 1 last. If the work can be done by the Infirmary for $15,000 or $18,000, it is possible, according to a statement by the Board of Surgeons, for the work to be done at the infirmary. If the city can agree to pay a reasonable sum for the work, annually, the closed Platt pavilion, which is operated only under heavy expense, will be reopened at once to meet the demand for treatment of the school children suffering from trachoma. A woman, who desired her name withheld, has sent a check for $500 to John L. Riker, treasurer of the Infirmary, with her best wishes for the success of the work.

Manhattan Dermatological Society.—This society held its regular meeting on March 4, 1904, at the residence of Dr. Weiss; Dr. Oberndorfer, presiding. Dr. Gottheil presented case of gumma of conjunctiva of right lower eyelid. Diagnosis accepted universally. He also presented a case of epithelioma of tongue in male, six to seven years' duration, excision of nodule on tip of tongue years ago; recurrence on right side posteriorly; ulcer with hardened base. Dr. Weiss advises removal of jagged teeth in conjunction with ordinary treatment.

Dr. Oberndorfer presented boy with pemphigoid eruption on face. Patient when presented to this Society before had well-marked bullous lesions; now only more or less diffused erythematous spots to be seen.

In the absence of Dr. Ochs Dr. Gottheil presented a woman with maculosquamous syphilide on upper lip, chin and margin of hair and forehead. Child of woman, six years of age, has a very similar lesion on the right side of upper lip; child well-nourished and no other symptoms. Unanimous agreement that mother's lesion is syphilitic; Dr. Gottheil considers child's lesion syphilitic also. Dr. Moses had made histological examination of scales on child's face for the purpose of excluding trichophyton; no fungus found. Dr. Weiss considers lesion in child a simple non-syphilitic eruption; Drs. Cocks and Oberndorfer agree in the main with Dr. Weiss.

Dr. Gottheil presented a child, two months old, with syphilis congenita and eczema intertrigo, of seven weeks' duration; Drs. Oberndorfer and Moses agree to diagnosis made; Dr. Pisko considers lesion psoriasis; Dr. Weiss excludes syphilis at first but subsequently alters his opinion so as to consider syphilis a possibility.

Case presented by Dr. Gottheil for Dr. Ochs. Woman with macular eruption on chest and sides, which at one time looked very much like a pityriasis rosea. Has had eruption off and on for two years, and syphilis has at various times been thought of. Dr. Weiss, after taking into consideration the generalization, scaliness, long duration and absence of concomitant luetic symptoms, diagnoses seborrheic eczema; others present concur.

Dr. Gottheil presented a woman, who had already been presented as case of lichen planus corneus. Papules now principally on wrist. He also presented a case of bromoderma. Pustular, acne-form leg and thigh lesions.

Dr. Pisko presented a woman with a characteristic case of lupus erythematosus. Left side of face had been swabbed with formalin, causing severe pain and a new crop of lesions; one application of trichloracetic acid with good result on right side; must be applied gently.

Dr. Weiss presented a woman with lupus erythematosus; Dr. Cocks thinks morphea exists on right side of face also.

Dr. Gottheil reports four cases treated with Finsen ray and three cases cured and not yet relapsed. Some cases look at times like seborrhea, at other times they look like lupus erythematosus. Dr. Moses found the Finsen light useful or curative in a large number of cases at the Finsen Institute. In one very severe case in a man, he observed an almost perfect result from painting the lesions with tr. iodi and the use of quinine internally; Dr. Weiss agrees generally with suggestions made.

Dr. Pisko showed a typical case of psoriasis; well-marked and with typical course.

Dr. Weiss presented a case in a middle-aged woman; the lesions consist of small, red papules on axillary folds and on abdomen and which he designates provisionally as lichen ruber acubus. Dr. Cocks considers that it could be grouped among the eczemas, but Drs. Pisko, Gottheil and Jacobson agree in the main with Weiss, although claiming it as a lichen simplex and advise further study, both histologically and clinically before definitely classifying it under a special rubric. Dr. Moses proposes to excise one of the lesions for histological examination.

Dr. Moses presented a case of multiple syphilitic infection in a young married man. Patient presents a typical indurated urethral chancre one-fourth inch posterior to meatus; also an indurated subcutaneous nodule in scrotum, immovable and firmly attached to epidermis. The latter has been extirpated for histological examination, and in healing the operation wound has reindurated. The scant secretion from urethra on microscopical examina-

tion shows the absence of pus cells and gonococci; numerous bacteria and cocci are present. The histological examination of scrotal lesion has not been completed; also two lesions on corona glandis. Two crusted ulcerations exist on right forearm, which simulate both a serpiginous syphilide and a simple impetiginous eruption. Dr. Gottheil diagnoses multiple syphilitic infection; possibly a quadruple infection. Dr. Cocks considers the lesions on arm gummatous, and those on corona glandis serpiginous syphilides; in regard to lesion in meatus he requires further observation before making diagnosis. Dr. Weiss considers lesion on meatus as undoubtedly an initial sclerosis, although the absence of glandular involvement is remarkable.

Dr. Oberndorfer presents a man with lichen planus. The patient is also afflicted with an artificial dermatitis which he considers as due to having worn an undershirt from a deceased friend, and presents many new scratch lesions; the latter lesions are of three weeks' duration.

PHILADELPHIA.

Leper to Be Returned to Hawaii.—An Hawaiian leper has been discovered in this city after living here for three weeks. He sought treatment for blotches on his skin, this leading to the diagnosis of leprosy. It is said that the man will be returned to join the leper colony in Hawaii.

Smoke Ordinance Adopted.—City Councils have passed a smoke ordinance, to go into effect next October. The bill does not include all that its promoters desired, but it is at least a beginning toward a less vitiated atmosphere. The standard fixed by councils is the regulation color scale of two densities and the limitations of the various smoke-producing establishments have been specified. A fine of $25 is to be paid for each failure to comply with the requirements.

Epidemic of Measles.—There are more than 3,000 cases of measles now under treatment in Philadelphia, and during the past week 17 children died from the disease. Physicians say they have found more serious results from measles during the past winter than are usually met with in cases of scarlet fever. This is considered largely due to the fact that greater precautions are usually observed in connection with the latter disease, measles being looked upon as an exceedingly mild and comparatively inoffensive infection. With the present epidemic this is not true and parents are being advised to call a physician at once when the attack begins.

Philadelphia Hospital Residents.—Considerable apprehension is being felt by the students of certain of the medical colleges of the city regarding this year's Philadelphia hospital appointments which are looked upon as among the most valuable hospital positions open to Philadelphia graduates. This feeling is due to the fact that equal representation among the three larger colleges, with a certain number of representatives from the Woman's Medical College, is to be abolished and the appointment made according to standing in an examination soon to be held. This sounds fair enough and a strictly impartial examination is promised by those in authority; nevertheless there is a quite general opinion that politics will sooner or later again have much to do with the appointment of internes.

High Death-rate Since January 1.—From January 1 to March 19 this year the deaths from all causes have been 7,983, this being 1,761 more than during the corresponding period of 1903. Deaths from pneumonia lead the list with 1,227, the second being tuberculosis with 704 deaths. Measles has helped swell the rate by furnishing 93 of the fatal cases, as against 25 during the first three months of 1903.

Dr. Maragliano Ill.—Owing to the illness of Dr. Edoardo Maragliano, of Genoa, Italy, he will be unable to deliver his address on Tuberculosis, under the auspices of the Phipps Institute, which was scheduled for March 28. Dr. Maragliano has, however, authorized Dr. Lawrence F. Flick to read his address on that evening.

CHICAGO.

Talks on Nervousness.—During the coming summer an interesting course of lectures for teachers and graduate nurses will be given under the auspices of the Chicago Hospital School for nervous and delicate children. The lectures will cover the field of work with defective and abornmal children. Among the physicians who will lecture are Dr. Daniel R. Brower, Dr. Archibald Church, Dr. Henry B. Favill, Dr. Hugh T. Patrick, Dr. Eugene S. Talbot, Dr. H. V. Halbert, Dr. N. B. Delameter, Dr. Harold N. Moyer, Dr. Truman W. Brophy, Dr. Frank Billings, Dr. W. S. Christopher, Dr. Frank Allport, Dr. Julia Holmes Smith. A number of specialists from other cities will also present interesting phases of the work. The complete program will probably be in readiness about the middle of April. During the last two years the school has had a large correspondence class of teachers, and it is the aim of the institution to make it possible for these outside teachers to come together for the discussion of their problems and to have presented to them from the physician's point of view the most scientific methods of handling such children. The course is open to parents as well as teachers.

Iroquois Hospital Plan.—The proposal of the Iroquois Memorial Association to establish an emergency hospital in the business district in memory of the victims of the theatre fire has been indorsed by the Chicago Medical Society. The action of the society was embodied in a resolution presented by Dr. Andrew M. Harvey and seconded by Dr. W. A. Evans. The preamble lays stress on the need of a hospital in the heart of the city and the resolutions continue: "Resolved, That the Chicago Medical Society approves the action of the trustees of the Iroquois Memorial Emergency Hospital in their generous effort to give to the people of Chicago a modern, fully equipped and endowed hospital capable of rendering prompt assistance to those cases of unexpected injury and sickness, which are of daily occurrence, and be it further resolved, that we, as a society, tender to the hospital our counsel, advice, and professional service whenever required."

Another National Anti-tuberculosis Association.—To prevent tuberculosis by legislation and through a campaign of education is the object of an organization incorporated in Springfield recently under the name of the National Anti-Tuberculosis Association. The incorporators are Dr. W. B. Metcalfe, Rev. F. M. Carson, C. W. Hanford, Alderman W. M. Butterworth and Walter R. McDonough, all of Chicago. According to the incorporators the association is purely philanthropic. They expect to enlighten the public through lectures and publications and to urge several important legislative measures that will check a spread of the disease. There is not a tuberculosis clinic in Chicago, and they mean to establish one in the downtown district as soon as possible. Several doctors are interested in the association and the list of directors will show a large number of the prominent business men of the city. A campaign of education and for better legislation is needed to protect families. In the way of legislation the most

apparent need is a registration of patients suffering from tuberculosis. In the Eastern States there is such a registration and it has done great good. A hospital for the treatment of the disease may be established later.

Order of St. Joseph to Erect Hospital.—Plans for the Hotel Dieu, a religious hospital to be built for the Hospitalers of St. Joseph, who came here from Kingston, Ont., have been prepared by Architect George A. Beaudry. The building will be erected at the corner of Harvard avenue and Sixty-fourth street, and will be four stories high, covering an area of 165 by 175 feet, and be of fireproof construction. The exterior will be of Bedford stone, with tiled mansard roof, above which will rise an ornate dome 68 feet high. In the halls there will be enameled brick wainscoting with marble and mosaic work, and the building will embody all the improvements that go to make up a first-class hospital. The cost is estimated at about $200,000. This, however, will be but a part of the building, which, when complete, will have a frontage of 225 feet and a depth of 175 feet. Rev. Bernard P. Murray, pastor of the St. Bernard's parish, will have charge of the building.

Consumption and Pneumonia.—The Chicago *Tribune* under date of March 12 has the following to say with reference to these two diseases: "In the United States in 1899, 105,971 people died of pneumonia as against 109,750 who died of tuberculosis of the lungs. As comparative numbers they stood appallingly close together. But even in the matter of human life there may be economic differentiation. Economically it is a fact of tremendous significance that 33,807 of the victims of pneumonia were under two years old. Human lives, it is true; infants which might have had vital bearing upon the future of society and State. Yet from the economist's point they were physical weaklings upon which little had been spent. But what of tuberculosis? It is of inconsiderable peril until the age of ten years. Between the ages of fifteen and nineteen years, however, its black shadow has eclipsed that of pneumonia, and between the ages of twenty and twenty-four years it has reached its maximum in 16,031 deaths in one year. Human lives? Yes, lives that are just equipped for the beginning of life and living—lives upon which the maximum has been spent in preparing for life. For 1899 the census showed 24,905 deaths between five and forty-five years from pneumonia as against the 72,960 from tuberculosis. At the flood tide of life phthisis takes three times as many people as pneumonia. But of the 24,905 victims of pneumonia there are other facts of vital bearing. Broadly speaking, the victim of pneumonia is a weakling. The reports of the census show that from fifty-five to seventy years there is an increase in deaths from pneumonia with a more than corresponding decrease from tuberculosis."

Inspection of School Children.—The Board of Education of Chicago through Dr. Henry Hartung has formulated the following routine for the examination of school children: *Eyes.*—Diseases of the conjunctiva and lacrimal apparatus, muscles of the eyeball, visual acuity, hypermetropia, myopia, astigmatism. *Ears.*—External ear, auditory meatus, drum membrane, hearing, acute or chronic diseases of middle ear. *Mouth and Pharynx.*—Defects of tongue, lips, palate, condition of teeth, hypertrophy of tonsils, pharyngitis, adenoids, granulations, etc. *Nose.*—Acute or chronic rhinitis, nasal hypertrophies, polypus, deflection of septum, etc. *Chest.*—Abnormal development, round shoulders, spinal deflection, diseases of the heart and lungs. *Skin.*—Acute or chronic affections, scabies, pediculosis, favus, etc. *General Nutritional and Structural Disorders.*—Anemia, chronic headaches, glandular enlargement, tuberculosis, deficiency of muscular development, nervousness, chorea, or any pathological condition which may retard the pupil's growth or influence his progress in school work.

Treatment of Bronchitis, Bronchopneumonia and Pneumonia in Children.—In a paper on this subject, read before the March meeting of the Chicago Pediatric Society, Dr. James Warren Van Derslice stated that in many children there was a tendency toward catarrhal inflammations of the air passages. How to remove this tendency was a hard problem. No amount of cod-liver oil and tonics would overcome this predisposition without good hygiene. The temperature of the rooms was kept too high; the temperature of living rooms should be 68° to 70° F. Children should be accustomed to outdoor air. This should be begun in the summer and continued throughout the year except in case of a storm, when the child should be dressed for outdoors and taken in a room, with windows wide open, for twenty minutes to half an hour. Cold sponge bath of the chest and arms every morning was of value. The child's underclothing should be of wool, the lightest weight in summer, and only medium in winter. Chest protectors should be discountenanced. Care must be taken that the feet are kept warm and dry. The mistake in dressing the child was almost always on the side of too much rather than too little clothing. The sleeping room should always be supplied with fresh air, and the child should sleep in flannel night-clothes. The sending of patients to a warmer climate during the winter season was necessary in a few cases, but he believed the majority of them did better in a dry cold climate. He discussed the general management of these cases, and then spoke of the value of inhalations of steam, saying they were not sufficiently appreciated. These were best given in a tent by placing medication in a quantity of boiling water, as the use of lamps in a tent deoxidized the air too much. Three quarts of boiling water in an earthen vessel would produce steam for ten minutes, which was about the length of time these inhalations were usually given. They should be given every two to four hours. Simple lime water inhalations were the best; later creosote, pine needle oil, compound tincture benzoin, terebene, turpentine, camphor, oil of eucalyptus, or eucalyptol might be used. Internal medication should be entirely symptomatic. The indications for treatment, in the main, were nutritional, stimulant and hygienic.

Thoracic Difficulties of Childhood Exclusive of Cardiac; Differential Diagnosis.—Dr. S. V. Balderston urged a closer study of the physical signs in thoracic disease of children. Auscultation alone is not sufficient. Pile-driver percussion is not suited to the child's chest. In these conditions, dyspnea, cough, cyanosis and nervous manifestations may be called cardinal symptoms. One should study the conditions within the air pasages and cavities which prevent free admission of air or cause irritation; also the conditions in the lungs and chest walls. Finally, the reflex and central conditions should be carefully studied. He divided the subject into two groups: (*a*) acute, and (*b*) chronic. Croup was used as a comprehensive term to include a variety of conditions in which there is a tendency to spasm of the glottis. Enlarged tonsils and adenoids are usually present; as an inciting cause catarrhal spasm of the larynx may be confused with acute bronchopneumonia at the outset. History of afternoon hoarseness, amenability to antispasmodics, and return of attack the following night indicate catarrhal spasm. Laryngismus stridulus is excluded in which there are periods of complete cessation of respiration. Acute bronchitis. (*a*) Simple; (*b*) severe, and (*c*) capillary bronchitis. (*a*) In mild cases the question is whether it is merely a

complication of another disease. (*b*) Onset of severe bronchitis cannot be differentiated from pneumonia. Exaggerated, not bronchial, breathing observed all over the chest. Any impairment of resonance or suggestion of bronchial breathing excludes bronchitis. (*c*) Capillary bronchitis, no attempt is made to differentiate it from bronchopneumonia. Pneumonia. Bronchopneumonia signifies a low resisting power. It presents the symptoms of a mixed infection. At the onset there was marked prostration and cyanosis; variable temperature, very high or very low. There are indefinite areas of consolidation and bronchial breathing, marked dyspnea, great mortality. In lobar pneumonia the physical signs are all-important; there is the most difficulty in central consolidation. The physician should watch for bronchial fremitus. The characteristic signs were defined area of dulness and bronchial breathing. Chronic conditions. Here it is a question as to whether or not there is infection by the tubercle bacillus. In cases of chronic cough and chronic pneumonia following pertussis and measles, *Bacillus tuberculosis,* enlarged tonsils and adenoids may serve to keep up the cough. Enlargement of the bronchial glands irritates the recurrent laryngeal. This enlargement may be tuberculous or not. In children tuberculous infection of the lungs probably starts from the center through infection from these glands; hence there is rarely infection of the extremes of the lung. Cavernous breathing and cracked-pot sounds do not indicate cavity, but consolidation about a bronchus. The family history should be carefully investigated, likewise the surroundings, also for foci in other parts of the body.

GENERAL.

State Manufacture of Antitoxin in New Jersey.—Dr. F. C. Henry, a practising physician in New Jersey, has introduced a bill in the legislature of that State recommending the building of a plant for the wholesale manufacture of diphtheria antitoxin. Dr. Henry's bill provides as follows: "1. The State Board of Health shall provide such laboratory or laboratories, apparatus, materials, and other requirements necessary to make or prepare and distribute diphtheria antitoxin to the inhabitants of the State. 2. The State Board of Health shall make or prepare and distribute without charge, in sufficient quantities to supply the inhabitants of this State, diphtheria antitoxin in such manner through local boards of health, or otherwise, as the said State Board of Health shall by rules determine. 3. This act shall take effect immediately."

The bill is endorsed by the State Board of Health, which has plenty of facilities for making antitoxin. The measure was referred to the Judiciary Committee and it will probably soon be reported and rushed through.

Massachusetts is said to be the only State of the Union which at present owns and controls its antitoxin laboratories.

Canal Site a Pest Hole.—In a report to the Government upon sanitary conditions in Panama, Dr. Claude C. Pierce, assistant surgeon in the service, says that the climate there is likely to prove a menace to all American visitors for some time to come. No isolation of infectious diseases is compulsory, and their prevalence in that region is well known to everyone. Leprosy is more or less common in Panama city, along the Panama railroad, and in the country districts. Beriberi has been common since 1897, and there are now thirty cases in the French hospital in the above-named city. At present there are very few cases of smallpox, because provision has been made for a general free vaccination. The other diseases commonly seen are tuberculosis, dysentery, elephantiasis, yellow fever and estivo-autumnal malaria. Dr. Pierce says that the climate at the isthmus "practically prohibits efficient work, and would lead to a wanton sacrifice of human life impossible to estimate were American laborers sent there in large numbers."

Physicians in Demand.—The German and Russian governments have prevented the holding of the Tenth Congress of Polish Physicians and Scientists, which was set to be held at Lemberg, Austria, July 2 to 24, 1904, as their presence is desired at home.

Meningitis in Malone.—This town has been suffering from an epidemic of cerebrospinal meningitis the past two weeks, and eight deaths have resulted. As the disease has been confined solely to school children, the Board of Education, at a meeting this week, voted to close the schools until such time as the epidemic is checked.

Hospitals under Construction.—According to *Charities,* nearly a million and a half dollars is now being spent, or is about to be spent, in some nine different States for new buildings for the insane. This is exclusive of New York State, where between $600,000 and $900,000 is annually expended for this purpose. It would seem pertinent to inquire whether there might not be an increase in efficiency and decrease in cost if the experience of the different States were in some way made available to one another. We have practically the same classes of patients to be provided for in all cases, and there is little reason why buildings which have been found suitable in Massachusetts should not be suitable in Oregon. The building operations now under way, or already planned, include entirely new institutions at Norwich, Conn., Allentown, Pa., and Parsons, Kansas, and additions to existing buildings at Norristown and Harrisburg, Pa., Spring Grove and Sykesburg, Md., Dunning and Watertown, Ill., Lyons View, Tenn., Hopkinsville, Ky., San José, Cal., Eloise, Mich., Las Vegas, New Mexico, Norfolk, Neb., and Pineville, La. The buildings include administration buildings, nurses' homes, cottages for convalescents and buildings for almost all other classes of patients. These buildings are probably designed in most cases by architects who have little familiarity with the requirements of the insane or with expert opinion on the subject of their accommodation. It is not customary for architects to specialize on institution construction, and the appointment of an official State architect has probably never been considered in most cases. Problems which have been solved only after many failures in some of the older States are, perhaps, worked out afresh without adequate data. In 1891, William P. Letchworth, a member of the New York State Board of Charities, wrote a valuable paper on "Poor-house Construction," which was transmitted by the State Board of Charities of the legislature and was afterward reprinted and circulated for the information of the public. How helpful it would be if some expert in hospital construction would prepare a treatise on the construction of institutions for the insane, illustrated with plans and elevations and equipped with references to localities where successful exponents of sound theories of construction could be seen and studied.

London Medical School Endowed.—Sir Donald Currie has given $500,000 to the University College and London University. It is intended with this sum to build a school of advanced medicine, and it will also enable the university to incorporate the college in its system.

X-ray Anniversary.—It is announced that in 1905, the tenth anniversary of Roentgen's famous discovery of the X-rays, a Roentgen celebration will be

held in Berlin. This will include an exhibition of Roentgen apparatus, and persons desiring information regarding the arrangements should communicate either with Prof. R. Eberlein or Dr. Immelmann, of Berlin.

Iowa Hospital for Drunkards.—The Iowa State Senate on March 18 voted an appropriation of $125,000 for the location at Knoxville of a hospital for habitual drunkards. This is the first open approval of Iowa's so-called "dipsomaniac law." This law, which went into effect two years ago, has been severely criticized.

The Plague at Pretoria.—The bubonic plague has appeared here, but is well in hand and is confined to the coolie population. There has been one death.

OBITUARY.

Dr. Thomas McInnes, Senator from British Columbia, and subsequently Lieutenant-Governor, died at Vancouver last week. He was a pioneer in British Columbia.

Dr. James Brownlee Sanford, Speaker of the Colorado House of Representatives, died at Denver last week of appendicitis, aged thirty-five years. He was born at Penn Yan, N. Y.

Dr. Moreau Morris died last week at his home in East Seventeenth street, this city. He was born at Stillwater on June 19, 1825, and was graduated in 1848 from the College of Physicians and Surgeons. In 1866 he was appointed health commissioner, and from 1870 to 1872 served as superintendent of the New York City Health Department and State cattle commissioner. In 1871 he became surgeon of the Seventh Regiment, N. G., S. N. Y., and served until 1884. Immediately following his retirement from the National Guard he was appointed tenement house commissioner. Dr. Morris was a member of the Seventh Regiment Veteran Association, of the American Public Health Association, of the Alumni of the College of Physicians and Surgeons, and of the Academy of Medicine.

Dr. William Frederick Holcombe, for many years one of the most distinguished physicians in New York and a noted specialist on diseases of the eye and ear, died suddenly last week in the Presbyterian Hospital, after a brief illness, from a general breakdown due to old age. Dr. Holcombe lived for years at No. 54 East Twenty-fifth street, and treated General Grant during his last illness. He also treated Daniel Webster and Charles Sumner. Some ten years ago he became deaf, and through this affliction was compelled to give up his practice, as well as his professorship on diseases of the eye and ear in the New York University Medical College, the New York Ophthalmic College and Hospital, and the New York Medical College for Women. He was born in Stirling, Mass., April 2, 1827. Dr. Holcombe was one of the founders of the New York Genealogical and Biographical Society and was a member of the International Medical Association.

Dr. Frank K. Irving, electrotherapeutist of the City Hospital at Newark, N. J., died in that institution last week of tuberculosis to which he subjected himself in his search for a means of curing that disease by reaching the germs with the electric current and forcing a mineral solution through the tissues to the affected parts. Dr. Irving was thirty-five years old and was born in Fort Wayne, Ind.

Dr. Thomas W. Watkins died last week at his home, 453 Forty-second street, Brooklyn, in his seventy-sixth year. He was a son of the late Dr. John Watkins of London, England, who was among the first to use chloroform in medical practice. The son came to this country thirty-five years ago and settled in Brooklyn.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

London, March 3.

ROYAL VISIT TO CAMBRIDGE—INDISPOSITION OF THE KING—HEALTH OF THE BRITISH NAVY—LORD NELSON'S LOST ARM—PREJUDICE AGAINST LADY DOCTORS.

On March 1 the King and Queen visited the University of Cambridge for the purpose of formally opening the new museums and laboratories now approaching completion. It is fifty-six years since a reigning sovereign has shed the light of his material countenance on the ancient seat of learning that lies among the sedges of the Cam, and the visit was made the occasion of a display of exuberant loyalty which among the undergraduates took the form of rowdiness and "ragging." The King wore the scarlet robes and quaint hat of a Doctor of Laws. It may be mentioned by the way that His Majesty's academic millinery is almost as varied as that of his Imperial nephew of Germany is in the way of military uniforms. King Edward, besides his Cambridge doctorate, is a D.C.L. of Oxford, a LL.D. of the Universities of Glasgow, Dublin, Calcutta and Wales, and a Doctor of Music of the Royal University in Ireland. It may be added that he is an Honorary Fellow of the Royal Colleges of Physicians and Surgeons, having in each of these capacities the privilege of wearing special raiment of a more or less decorative character. He was himself a student, both at Oxford and at Cambridge and to Trinity College in the latter University he sent his eldest son, the late Duke of Clarence. In the Senate House the King made a little speech which—it may be mentioned for the information of a certain New York specialist who made a confident diagnosis of laryngeal cancer on no better foundation than the huskiness of the royal voice—was delivered in clear, strong tones. One passage was specially significant. He declared that he earnestly desired the extension and development of all branches of study and research, and he foretold that Cambridge would continue to occupy a foremost place in this great work. He spoke, too, of the new endowments of education which were necessary if it was to be kept up to its proper standard of efficiency. It is to be hoped that this hint from the King will bear fruit, for it is difficult to get the British public to see that such endowments are required. Their view of education is that expressed of literature by William Pitt. When that statesman was asked to grant a pension to a meritorious man of letters, his reply was "Oh, literature can take care of itself!" The new buildings of the Cambridge Medical School will add considerably to its efficiency. It is already the largest school of medicine in England, but the teaching has hitherto been crippled by the want of laboratories and equipment.

The day of the royal visit to Cambridge was bitterly cold and it was noticed by some of those present at his reception that the King's face was almost cyanotic and his breath very short. He has to a large extent regained the Falstaffian girth which he partly lost after the operation. He has greatly aged within the last year or two, and his general appearance is that of a man whose constitution is undermined. To-day it is announced that he caught cold at Cambridge, but the indisposition is said to be slight. There can be little doubt, however, that from an insurance point of view he is a "bad life."

The Statistical Report of the Health of the Navy for the year 1902, which has just been issued, shows that with a personnel increase by 1190 as compared with the previous year, there has been an increase of

cases of sickness and deaths; on the other hand there has been a decrease of invalidings. The following are the figures:

Year.	Cases.	Deaths.	Invalidings.
1902	85,769	590	2,985
1901	84,026	526	3,108

The total force serving afloat in 1902 was 99,600, so that the aggregate number of cases of disease and injury recorded in the year furnishes a ratio of 861.13 per 1,000, which shows an increase of 7.3 per 1,000, as compared with the ratio for 1901, but a decrease of 22.2 when contrasted with the average of the last five years. The average number of men sick daily was 3,523.39, giving a ratio of 35.37 per 1,000, and showing a decrease of .02 per 1,000 compared with 1901, and of 1.71 in comparison with the last five years' average. The total days' sickness on board ship and in hospital was 1,286,038, which represents an average loss of service from disease and injury of 12.91 days for each person, which is the same as the preceding year, and a decrease of .6 in comparison with the average of the last five years. The total number of persons invalided was 2,985, which is in the ratio of 29.96 per 1,000, and shows a decrease of 1.62 per 1,000 when compared with 1901, and a decrease of 1.21 in comparison with the average of the last five years. Of the above total 2,066 persons were finally invalided from the Service, 200 of these refused surgical operation, giving a ratio of 20.74 per 1,000 for the whole force, or 69.21 per cent. of the number invalided, thus showing a decrease of 1.1 per 1,000 when contrasted with 1901. As regards the death rate, the ratio per 1,000 was 5.92, an increase of 0.58 per 1,000 compared with 1901, and a decrease of 0.29 when contrasted with the last five years' ratio. The highest death rate appears on the Pacific Station, viz., 67.42 per 1,000, due to the unfortunate loss of the Condor. There were no deaths on the Southeast Coast of America Station. Only two wounds in action are recorded, with one death. The prevalence of enteric fever and the mortality from that disease show a slight decrease. One case of plague, with a fatal issue, is reported from the East Indies Station. Cholera shows five cases with four deaths on the China Station. A decline in the ratio of cases of primary syphilis is shown, but there is an increase in regard to constitutional syphilis and also to gonorrhea.

An appendix to the blue-book, containing the report on the health of the Navy, gives a number of extracts from journals of medical officers of the Navy between 1793 and 1856. One of the most interesting of these is from the journal of the surgeon of the Theseus; it is dated "1797, July 24th and 25th," and is to the following effect: "Admiral Nelson. Compound fracture of the right arm by a musket ball passing thro' a little above the elbow an artery divided, the arm was immediately amputated and the following given him ℞ Opii. gr. ij. ft. Pil. statim. s., etc., 26 July. Rested pretty well and quite easy. Tea, soup, and sago. Lemonade and Tamarind Drink. 31 July. One of the ligatures came away; looks well. 1 Aug. Continued getting well very fast, stump looked well, no bad symptom, sore reduced to the size of a shilling." It may be remembered that Nelson received the wound for which his arm was amputated in a naval engagement off Santa Cruz. He bore the operation without flinching, but afterward declared that he had suffered much pain from the coldness of the surgeon's knife. This led him to issue an order that surgeons should always dip their knives in hot water before operating. The surgeon of the Theseus says nothing more about the case. The only further reference to it is found in the *Journal of the Seahorse*, wherein the surgeon, Mr. Thomas Eshelby, writes: "I was appointed from the Theseus, to attend the Admiral to England . . . . one of the ligatures not come away. Twitching Pains at times, particularly by night. I gave the following: ℞ Haust. Salin. c. Tr. Opii. gtt xl. h. s. sumendus et rep pro re nata. Dress'd with Cerat Lap Calamin and dry Lint: he landed at Portsmo. 1st Sept. would not suffer the ligature to be touched." It is remarkable that the journal of Dr. Beatty, surgeon of the Victory, which is preserved in the Public Record Office, contains a list of the wounded at the battle of Trafalgar but is absolutely silent respecting the death of Nelson.

The medical profession in this country can furnish some of the most striking examples of fine old crusted conservatism to be found anywhere. When the proposal to admit women to the medical degrees of the University of London was first discussed, the late Sir William Jenner declared that he would sooner see his only daughter in her coffin than working in the dissecting room. He was the trusted physician of Queen Victoria and apparently believed that, although a woman could rule the State, she was unfit by some mysterious defect of nature to prescribe a dose of gray powder to a sick child. Afterward, when the University opened its doors to the ladies, Dr. Wickham Legg, then on the medical staff of St. Bartholomew's Hospital and author of a huge book on diseases of the liver, shook the dust of the University off his feet by resigning his degree; he has since devoted himself to the study of liturgy, which is presumably undefiled by the intrusion of women. Quite recently there has been an equally ridiculous exhibition of a prejudice which, it might have been thought, now existed only in a fossil state. A lady holding the highest professional qualifications was a short time ago appointed medical officer to the Western Infirmary, Westminster. She entered on her duties and gave great satisfaction to the poor patients among whom she worked. The result seemed fully to justify her appointment which was about to be made permanent, when Dr. Allchin, one of the honorary consulting physicians of the dispensary, sent in his resignation. He has been on the staff of the institution for thirty years and the governors found themselves in the awkward position of having to choose between retaining the support of the consulting physician or dismissing a competent and popular medical officer because the appointment of a woman was an outrage to the professional bigotry of the former. To the shame of the governors be it said they decided to sacrifice the lady. Their decision is the more extraordinary since the services of Dr. Allchin are now little more than nominal. He is a man of impetuous temper, who a few years ago threw up the post of Registrar to the Royal College of Physicians because he could not have his own way in some trumpery matter. For no better reason than to smooth the ruffled plumes of his susceptibility, the poor of Westminster have been deprived of the ministrations of an efficient medical officer. There is special need for a lady practitioner in the district. During the short period she has been in office her consulting rooms have been crowded every evening, and at the dispensary, where the patients are nearly all women and children, she was often preferred by those who could not consult a male doctor. According to her testimony there is a stronger feeling in favor of ladies among the poor than among the upper classes. Dr. A. E. Cope, who is also on the staff of the dispensary, has stated that the great bulk of the work of that institution was done among women and children, and having regard to the clientele there was plenty of room for a lady doctor on the staff. It is but fair to say, however, that such manifestations of obsolete prejudice as that just related are now quite exceptional here.

SPECIAL ARTICLE.

BYWAYS OF MEDICAL LITERATURE.—XX.

WILD ANIMALS AND DISEASE.

There are many who think that the wild animals are practically free from disease. Death is popularly supposed to come to them as the result of accident, or sometimes, but very rarely, as the consequence of old age. Very few people imagine that they are quite as subject to many of the diseases which make life unpleasant for human beings, as man himself. For instance, it is practically impossible to keep monkeys in confinement, unless the greatest care is exercised in preventing them from becoming infected with tuberculosis. At least three times in the last thirty years the monkeys in the zoological garden of Vienna have all died, as the result of tuberculosis. It is not alone in captivity either that animals are thus affected. Monkeys in their native wild woods are frequently found dead, having died from tuberculosis. It is even said that most of the carcasses of lions found in the desert of Sahara, contain evidence that the animal suffered during life from this disease, which is sometimes supposed to be the scourge only of insanitary living in crowded centers.

Those who imagine that animals do not suffer from even the minor affections that afflict human beings should read the article on the wild animal surgeon and his patients in the January number of *McClure's Magazine*. In these experiences of a veterinary surgeon, mainly occupied with the wild animals in the New York Zoological Garden, there are many stories of wild animals suffering from flatfootedness, from corns, from ingrowing toe-nails and from toothache. When animals suffer from toothache the affection is apt to be followed by abscess at the root of the tooth that often gives rise to blood poisoning and proves fatal. The same thing is true with regard to the ingrowing claws or nails, especially of the lions or tigers, which have to be operated upon in order to save the animal's life. Animals bear the suffering incident to these ailments very well until toxic absorption brings on a weakened condition, in which they become restless and uncontrollable. The whole subject is interesting as showing how comparative pathology enables us to explain the pathological conditions of the animals on exactly the same principles which form the basis of diseased conditions in human beings.

ANTIFAT CERTIFICATES.

In a story by the English humorist, Jerome K. Jerome, whose special genius allies him much more with American humorists than his English brethren of the farcical pen, there is an excellent description of how some of the certificates with photographs for antifat remedies are obtained. Every physician knows how difficult it is for both patient and physician satisfactorily to treat obesity, once it has begun to become a serious factor in life. The number of photographs that have been published then of people "before and after using" where success from some anti-obesity remedy seems assured, have been a source of no little mystery to the regular profession. The charlatans appear to succeed where the regulars fail. Mr. Jerome's explanation throws much light on the subject, however, and comes very near solving the whole mystery of the supposed efficacy of drugs that careful analysis has, over and over again, shown to possess no special merit as antifat remedies, being only simple familiar drug combinations, as a rule, little likely to correct a serious fault of metabolism.

Mr. Jerome introduces one of the principal characters in his story, "The Beginnings of William Clodd," in a recent number of *The Saturday Evening Post*, Philadelphia, in this way:

Mrs. Postwhistle sat on a Windsor chair in the center of Roll's Court. Mrs. Postwhistle, who, in the days of her hebehood, had been likened by admiring frequenters of the old Mitre in Chancery Lane to the ladies, somewhat emaciated that an English artist, since become famous, was then commencing to popularize, had developed with the passing years, yet still retained a face of placid youthfulness. These two facts, her youthful placidity in middle age and her generous rotundity, taken in conjunction, had resulted in an asset to her income not to be despised. The wanderer through Roll's Court this summer afternoon, presuming him to be familiar with current journalism, would have retired haunted by the sense that the restful looking lady on the Windsor chair was some one that he knew before. Glancing through almost any illustrated paper of the period, the problem would have been solved for him. A photograph of Mrs. Postwhistle, taken quite recently, would have been encountered with this legend, "Before Use of Professor Hardtop's Certain Cure for Corpulency." Beside it a photograph of Mrs. Postwhistle, then the youthful Arabella Higgins, taken twenty years ago, with the legend below slightly varied, "After Use of Professor Hardtop's Certain Cure for Corpulency." The face was the same in both cases, the figure, there was no denying it, had undergone decided alterations.

This gives an excellent explanation of many things that before seemed inexplicable. It is even better than that other explanation, furnished some time ago, by the publication of requests for testimonials in which it was stated that every one who sent a good testimonial for a certain medicine would receive a mantel clock, or any other prize that he might select from a list furnished by the proprietors. The premium habit has spread from the tea and coffee stores to the patent medicine establishments. It is an amusing study in psychology, however, to see whom the patent medicine managers select as the best people to secure testimonials from. Prominent clergymen, Senators, Representatives, judges and prominent actors, jostle one another on this stage, where the only thing needful is a good capacity for self-suggestion and autodelusion and a reasonable desire to annex a certain amount of the more or less easily earned money of the patent medicine man, in order to help him in still further securing the patronage that enables him to pay so well. A psychologist has recently written on the psychology of advertising. This field of the patent medicine man presents more opportunities for original research of the most interesting kind than any other that we know.

STELLWAG'S SYMPTOM ON THE STAGE.

For those who are interested in neurology, and especially external eye appearances in relation to certain nervous diseases, there were some very interesting observations to be made at the Vaudeville theater, where a French company was playing. Madame Wiehe, who took the principal characters, gave in a pantomime an imitation of a doll. For many minutes after being taken from the box in which the doll is supposed to have been shipped from France, even the most careful observation does not show any movement of the upper eyelids. It is usually said that there is an involuntary winking of the lids about every ten seconds. An initial symptom of Basedow's disease, first described by Stellwag, and often called Stellwag's symptom, though occasionally his name is associated, especially in countries other than Germany, with the so-called lagophthalmos, or hair eye, the inability of the patient to close the eyes completely, is the absence of winking over long

periods in the exophthalmic eyes. It is not in the most severe cases of exophthalmos that the winking is rarest, but there seems to be some interference with the nervous mechanism controlling the motions of the lids.

Usually it is considered impossible to control the movements of the lids, so as to prevent involuntary winking. The French actress seems, however, to have succeeded in training her lids so as to control their movements. At first the persistent stare of the eye is so marked that one is tempted to think that perhaps some preparation like collodion is applied to the upper eyelid, so as to help in preventing the involuntary nictitation. As, however, the man in the case is a Pygmalion, who succeeds in putting life into the doll, as the lovesick Greek sculptor did into his Galatea, there is some very lively winking of the eyes a little later, and yet, before the end of the piece, the doll, for purposes of her own, relapses into the first stage of more or less inanimate doll life and the winkless stare returns again.

The last of the short plays that ran at the Vaudeville, by the way, was by a Viennese physician, Dr. Arthur Schnitzler, whom many American medical students in Vienna have met during their residence in that lively city. The piece is distinctly French, and is sometimes said to out-Herod Herod in the matter of its Frenchiness. This is, perhaps, one of the reasons why it has been given the honor of adaptation into French and the introduction to a Parisian audience in this guise.

MEDICAL BIGOTRY.

It is the custom to think that bigotry belongs only to religious controversy and does not invade the field of scientific discussion. The *odium theologicum* is apt to be especially bitter, but it must not be forgotten that the *odium medicum* does not yield much to it in acerbity, and may do great harm. Some striking examples of it are furnished in the recent book on Hypnotism, its History, Practice and Theory, by Dr. J. Milne Bramwell, of Edinburgh, who is very well known as the author of a number of articles on the theory and practice of hypnotism. This book is published by the Lippincott Company, Philadelphia.

In English-speaking countries, at least during the first half of the nineteenth century, an interest in hypnotism on the part of a serious medical practitioner, and especially one whose talents and skill had procured for him a practice as a consultant, was almost sure to be followed by the loss of consultations. Three names particularly stand out in English medical history in this regard—they are Elliotson, Esdaile, who did his work in Calcutta, and Braid, who is very well known as the most authoritative early English writer on hypnotism.

"In 1831, Elliotson was appointed Professor of the Practice of Medicine at University College. His connection with that institution and the commencement of his mesmeric researches were described in the *Medical Times* by the writer already referred to, and I again quote the latter almost in his own words. Thus, he said, on the establishment of the University of London, or, as it is now called, University College, Elliotson moved there, as to a temple after his own heart, and devoted himself enthusiastically to its interests. He was all for the College, was its great impelling force, and worked for it with an alacrity and energy that explain much of its early progress. The hospital may be said to have been mainly his erection. Yet here, in the home of his labors, the scene of his triumphs, he received his greatest check. Dupotet's visit to this country attracted much attention to mesmerism, and led Elliotson to investigate the subject. His experiments were successful, and believing that he had found an opening into an unexplored science, he pursued them with zeal and daring enthusiasm. His reckless independence made him many enemies and official opposition to mesmerism led him to resign his hospital appointments. Notwithstanding this, Elliotson adhered to mesmerism and sacrificed to it friends, position and practice, but still looked forward to the hour when the profession would say of it, as of creosote, iodide of potash, prussic acid, auscultation, etc.: 'Useful novelties if properly employed.'" Elliotson was really, however, one of the most progressive medical men of his time.

"The *Lancet* pointed out that it was he who had shown how the heart sounds were influenced by posture, and had also drawn attention to many other hitherto unnoticed phenomena connected with auscultation. Elliotson, in fact, was the earliest to use the stethoscope in England and began to do so immediately after the publication of Laennec's work. At first he made his observations quietly in his hospital wards, but, as soon as he drew attention to them, he was ridiculed and abused. The stethoscope, as well as the facts of percussion and auscultation as described by Auenbrugger, were condemned as fallacies by the foremost teachers of medicine in London, while even at a much later date, they were treated at St. Thomas's with indignation or silent contempt. At the College of Physicians a senior fellow, in a Croonian Lecture, denounced the folly of carrying a piece of wood into a sickroom. Another condemned the stethoscope as worse than nonsense, and said: 'Oh, it's just the thing for Elliotson to rave about,' while a third, on seeing one on Elliotson's table, said: 'Ah! Do you use that hocus pocus?' On Elliotson replying that it was highly important, he added: 'You will learn nothing by it, and, if you do, you cannot treat disease the better.'

"In 1846 Elliotson's turn came to deliver the Harveian oration, but, as soon as it was known that he had accepted the office, he was attacked in the most savage manner, in order to prevent his appearing. For example, the *Lancet* called him a professional pariah; stated that his oration would strike a vital blow at legitimate medicine, and would be a black infamy degrading the arms of the College.

"Undeterred by this," continues Milne Bramwell, "Elliotson made mesmerism the subject of his address. Without referring to the attacks which had been made upon him he simply stated the result of his researches, and respectfully invited the College to examine alleged facts of overwhelming interest and importance. He exhorted his hearers to study mesmerism calmly and dispassionately, and reminded them with more truth than tact, that all the greatest discoveries in medical science, and the most important improvements in its practice, had been opposed by the profession in the most violent and unprincipled manner. As examples of scientific discoveries which had been received in this way, he cited those of the lacteal vessels, the thoracic duct, the sexual system of plants, the circulation of the blood, the sounds of the chest and their relation to the diseases of the heart and lungs and their coverings, etc. As instances of improvement in practice which had been treated in like manner, he referred to the employment of Peruvian bark, inoculation and vaccination for smallpox, the use of mild dressings, instead of boiling oil, in gunshot wounds, the ligature of the bleeding vessels after operation, instead of the application of burning pitch or red-hot irons, etc. We should, Elliotson said, never forget these things, nor allow authority, conceit, habit or fear of ridicule to make us hostile to truth. We should always have before our eyes that memorable passage in Harvey's works: 'True philosophers, compelled by the love of truth and

wisdom, never fancy themselves so wise or full of sense as not to yield to truth from any source and at all times; nor are they so narrow-minded as to believe any art or science has been handed down in such a state of perfection to us by our predecessors that nothing remains for future industry.' All this, Elliotson said, should be borne in mind when considering the alleged facts of mesmerism. In his opinion many of these were indisputable; for ten years he had shown how mesmerism could prevent pain during surgical operation, produce sleep and ease in sickness, and even cure many diseases which had been unrelieved by ordinary methods. It was the imperative and solemn duty of the profession carefully and dispassionately to examine the subject. He, therefore, earnestly implored them to do so, if they cared for truth, their own dignity and the good of mankind."

Dr. Bramwell shows how the great Braid shared the obloquy of those interested in hypnotism. Braid frequently referred to the almost incredible opposition he had to combat, both at the hands of the orthodox medical practitioner, and of the mesmerists. His explanation of this is given in his own words:

"'Throughout the whole of my inquiries my chief desire has been to arrive at what could be rendered most practically useful for the relief and cure of disease; and I hesitate not to say that, in the hands of a skilful medical man, who thoroughly understands the peculiar modes which I have devised for varying the effects in a manner applicable to different cases, hypnotism, besides being the speediest method for inducing the condition, is, moreover, capable of achieving *all* the *good* to be attained by the *ordinary mesmerizing processes,* and *much more.* . . . Like the originators of all new views, however, hypnotism has subjected me to much contention; for the skeptics, from not perceiving the difference between my method and that of the mesmerists, and the limited extent of my own pretensions, were equally hostile to hypnotism, as they had been to mesmerism; and the mesmerists, thinking their craft was in danger—that their mystical idol was threatened to be shorn of some of its glory by the advent of a new rival—buckled on their armor, and soon proved that the *odium mesmericum* was as inveterate as the *odium theologicum.*'"

The third of the group of English medical observers to suffer from interest in hypnotism was Esdaile. In March, 1852, Esdaile published a pamphlet on The Introduction of Mesmerism as an Anesthetic and Curative Agent into the Hospitals of India, which he dedicated to the members of the medical profession. In this he complained bitterly of his treatment by the editors of different medical journals and of their determined attempt to suppress all evidence in favor of mesmerism. Professor J. Y. Simpson, of Edinburgh, had written to Esdaile to the effect that he owed it to himself and to his profession to let his proceedings be known in England. In response to this Esdaile sent an account to an English medical journal of 161 scrotal tumors removed during mesmeric trance. The history of what followed, and Esdaile's opinion of the treatment he received, shall be given in his own words:

"'My article was not published, and I then sent a more general paper containing a résumé of my surgical work. This was rejected for its *unproctical character!* I have heard that it is given as a reason for not printing my paper that, though no one now denies my facts, these apply to the natives of India only. But, as far as I know, no medical journal has admitted the reality of *painless mesmeric operations,* even for India, or inserted one of the numerous European cases reported from London, Paris, Cherbourg, etc. They will not admit, or permit you even to hear of, such indisputable facts, through fear of the consequences.'"

OPTIMISM.

Physicians who find patients discouraged under the weight, only too often, of imaginary woes, and who wish to arouse them to some sense of how good the world may seem even under the most trying circumstances to a really grave spirit, should prescribe the reading of Miss Helen Keller's little book on Optimism, which has recently been published by C. P. Crowell & Co., in New York. Most physicians know the story of Helen Keller very well. As the result of one of the infectious fevers in childhood she became blind, deaf and dumb. Notwithstanding this she was graduated with honors from college and university, and has written an autobiography that is one of the most interesting of human documents. The present volume is an essay in which she shows how many are the bright things in life for her, notwithstanding her apparently insurmountable infirmities. A good example of how she is able to bring darkness out of light is contained in the following sentences:

"When I learned from Berkeley that your eyes receive an inverted image of things which your brain unconsciously corrects, I began to suspect that the eye is not a very reliable instrument after all, and I felt as one who had been restored to equality with others, glad, not because the senses avail them so little, but because in God's eternal world, mind and spirit avail so much."

As a reviewer in the New York *Independent* said: "Nothing can be finer under the circumstances than this assertion, made so simply, and with such an air of personal conviction. In fact, one of the remarkable features of this essay is the experimental note in it, as if the writer had tested intimately every high doctrine she holds. Her philosophy is not the expression by rote of a person who has been well taught, but it is wisdom she has learned of her own volition and fitted to the bright heart of her darkness, a sort of psychic illuminating of her own mind. And in her vision of things there is no evidence of prejudiced deafness, and in the eloquence of her optimism no hint of dumbness."

AUTOMATIC DRAWING.

The peculiar things that may happen under pathological conditions of mentality have evidently not all been exhausted. A few years ago a young girl at the Salpetriere wrote some very curious, but absolutely unintelligible messages. Notwithstanding the failure to understand them she continued to write, and as this was the only means of expression she had in her deeply hysterical condition every effort was made to solve the riddle of the writing. Finally it was found that it was really mirror writing—that is, ordinary letters written in back hand and from right to left, such as Leonardo da Vinci, for some curious but unknown reason, employed in certain of his scientific manuscripts, wishing perhaps to conceal his original discoveries from those of his generation who might care to employ them for their own advantage or develop them for industrial applications, without giving their inventor due credit. Since the case of the Salpetriere girl a number of other cases have been recorded in which mirror writing was one of the symptoms. Just what curious functional disturbance of the cerebrum and the connecting neurons brings it about is indeed hard to understand.

In the January number of the *Popular Science Monthly,* Professor William James, Professor of Psychology and Philosophy at Harvard University, gives some details of a case of automatic drawing. The subject in this curious experience made peculiar draw-

ings of whose outline he was almost unconscious himself, apparently as the result of the guiding power of a secondary personality. These drawings, which are mainly quaint portraits of human beings, all have a certain similarity of type and this type is utterly unfamiliar in any other connection to the person whose hand is used in making them. The subject says: "My hand executed these without volition or direction from my natural self. My mind directed neither the design nor the execution. A new power usurped for the time being the functions of my natural or every-day mind. Many times I tried to produce pictures of familiar faces, or scenes familiar to me by long association. I could produce nothing in this direction, but confusion was the result of the attempt. My hand continued to be guided by the unknown power. Weird, fantastic pictures were produced in abundance, many of them artistic in execution, but mostly of ancient type.

"Sometimes the face would be so covered with strange devices as scarcely to be recognized as being intended for a face. Frequently a rock would be drawn with faces hewn in it. While drawing these pictures I became drowsy, so much so that after finishing an artistic one, I would sometimes go into an hypnotic sleep, and always would, after a long sitting, if I did not combat the influence. My pencil sometimes moved so rapidly as to make it difficult to follow it with my eye, at other times it moved slowly. Some of the best effects were produced by rapid movements. I never knew what my pencil would make when it commenced, and often did not know until finished. Sometimes a design would be entirely changed.

"Small pictures were frequently produced by a few rapid movements of the pencil from side to side, the pencil apparently not being lifted, yet the features of the face and general contour of the subject in hand would appear plainly. Voluntary suggestion has little effect on the drawings. After repeated suggestions, I have sometimes been able to obtain an allegorical picture, as for instance, when I asked for a message from my son, who resided at a distance, a carrier pigeon, having a ribbon around its neck with a letter attached, was produced.

"I have tried hard to account for the power or directing mind that produces these pictures, but so far with no satisfactory result. I must say, however, that evidence to me is strong that, in order that the unknown power should have sway, the natural or earthly mind must be for the time being set aside, either entirely, or (what seems to me more reasonable), the unknown power is the dominant one, but acts in conjunction with the earthly mind. Although while drawing, I feel more or less drowsy, my senses seem in some respects to be very keen. To my eyes the pictures usually appear highly exaggerated in beauty as well as distinctness."

New Method of Identifying Human Blood.—A valuable observation, made by H. Marx and E. Ehrenroth (Münch. med. Woch., Feb. 16, 1904), may be destined to replace the more complicated serodiagnosis in identifying human blood. The two authors discovered that if foreign serum is added to human blood, a rapid and complete agglutination of the erythrocytes occurs, while with homologous serum they are hardly influenced. The serum of monkeys behaves like homologous serum, except that the cells shrink and become polygonal instead of crenated. The technic is extremely simple: the suspicious blood is dissolved with a very small quantity of normal salt solution, mixed with a loopful of blood taken from the finger-tip and examined with the low power for the next fifteen minutes. Numerous tests gave as accurate results as serodiagnosis.

SOCIETY PROCEEDINGS.

THE SOCIETY OF THE ALUMNI OF CITY HOSPITAL.

One Hundred and Twelfth Stated Meeting, held February 10, 1904.

Hemorrhagic Diseases in Children.—This paper was presented by Dr. William L. Stowell. He stated that purpura is not a disease in itself, but the outward manifestation of a group of conditions not yet well understood. It signifies purple spots of hemorrhagic origin which occur in the skin upon mucous membranes and indeed upon all parts and organs of the body. It may seem to be due to one of the following: (1) Vasoneurosis, as in locomotor ataxia; (2) a drug, as iodide of potash; (3) an infectious disease, as diphtheria or smallpox; (4) a diathesis, as in rheumatism; (5) a special germ; and, lastly (6) a toxin, as in enteritis, following the ingestion of tainted food. The author cited a series of cases from which he deduced the following conclusions as to the indications for treatment. Of maximum importance, probably, is the proper management of the feeding of these patients, orange or lemon juice being frequently called for. Calcium chloride increases the coagulability of the blood and tends to check the hemorrhages. Vegetable acids and arsenic are useful. Among the newer drugs stypticin and suprarenal gland stand first; a number of cures of intractable cases having been reported through the use of these drugs. Adrenalin probably is our best drug. In conclusion, he stated that a specific germ is not yet demonstrated for all cases.

Dr. R. C. Newton said that young children possess very low resisting powers to bacteriological toxins. He asked the essayist whether he had not found it frequent for fatal cases to have persistent vomiting. Dr. Stowell replied that they invariably did vomit, if the infection was located in the gastro intestinal tract. Smith has reported 49 such cases. Dr. Newton believed that the persistent vomiting was probably an effort on the part of nature to get rid of the toxins.

Dr. Gessner Harrison reported a case in which the trouble had started from a scratch under the tongue. Infection was followed by a purpuric eruption. The patient recovered.

Case of Purpura due to Gastro-intestinal Disturbance with Final Recovery of the Child.—Dr. A. A. Moore reported this case. Another case had come under his care which had been mistaken for cerebrospinal meningitis. There were purpuric spots on the chest and abdomen, besides hemorrhages into the mucous membranes of the mouth. On autopsy, hemorrhages were found in the gastric mucous membrane and at the base of the brain.

Dr. A. Rupp cited a report whose author had investigated a number of these cases occurring in Italy. According to this author purpura was followed by icterus simulating yellow fever. Some cases show a waxy degeneration of the intima of the arteries.

Dr. R. Waldo had seen a number of cases in which the family history of the patient was decidedly tainted with tuberculosis and cerebral hemorrhage. In some people the onset of purpura may be extremely sudden. It is quite possible for such cases to be the victims of cerebral hemorrhage.

Dr. Oppenheimer cited a case of purpura which had followed a diphtheritic throat. Later the right eye grew black and in time sloughed out. The same condition developed later in the left eye, and was treated by incision. Sight was not preserved but light perception remained.

Dr. Terriberry had seen one case in which the pur-

pura had followed syphilis and had disappeared under anti-syphilitic treatment.

Dr. Stowell, in closing, said that the unusual fetor of the stools was due to hemorrhage from the mucous membrane of the gut. Authorities were much confused as to the etiology of hemorrhagic diseases in childhood, no definite knowledge being at hand up to date. One or two writers had believed that there were definite changes in the intima of the arteries and that the blood broke through the arterial wall directly into the tissues. He agreed with Dr. A. Jacobi that the three diseases, scurvy, purpura and hemophilia were manifestations of the same condition.

Abuse of the Uterine Curette.—Dr. Ralph Waldo said that he did not wish to criticize the legitimate use of this valuable instrument, but he felt it wise to direct the attention of the Society to the fact that it is used too freely and in an improper manner. This he ascribes to the fact, first, that the indications for its use are not properly understood, and second, that a positive diagnosis is not made before operation is undertaken. He confined his attention solely to those cases in which pregnancy had recently existed and in which the uterus had been partially or completely emptied. He said that there were but two legitimate uses for the curette under these conditions; one is to utilize the instrument as a sound for exploration, the other to employ it for the removal of foreign material. A sharp instrument should never be used for these conditions. If the body of the uterus is found to be abnormally large, it can usually be thoroughly emptied without the use of an anesthetic. The author emphasized the necessity of thoroughly and completely emptying the uterus at one sitting, repeated employment of the curette being strongly contraindicated. He believed that it is better to do nothing at all than to use a sharp curette and to partially remove the offending material, because this simply opens a way for the entrance for septic material.

Dr. W. Ridgely Stone said that it appeared that Dr. Waldo had unintentionally omitted to mention that the chief reason for the uselessness of the curette in cases of streptococcic infection was that the streptococci did not lie upon the surface of the infected mucosa, but were deep down in the lymphatics, far beyond the reach of the instrument.

Dr. A. A. Moore said that in examining 1,200 histories of cases of this character, he had found no mortality, whenever no instrument whatsoever had been used. From this he had concluded that no instrument, not even a dull curette, should be employed. He advised the use of saline irrigations and rectal enemata in the treatment of these cases.

Dr. C. G. Child preferred to use his finger to establish the diagnosis of the presence of retained secundines. Most infections he believed to be due to dirty instruments, clean instruments never being harmful when introduced into the uterine cavity. Sharp curettes, he declared, had never done harm in his hands, nor would they in the hands of others, if properly used. The patency of the cervical canal could not be considered a reliable sign of retained membranes, as this was most frequently caused by laceration of the internal os. A large number of the cases of profound sepsis were, in his opinion, due to the puncture of the uterus by a dirty curette, this lesion being usually brought about by a faulty technic.

Dr. R. C. Newton said that for years he had been in the habit of using the sharp curette in cases similar to those under discussion and had invariably met with admirable success.

Dr. Waldo, in closing, said that if the lochia were offensive, and whenever there was reason to suspect that some portion of the membranes were retained, the curette was indicated. His opinion as to the danger of the sharp instrument was unaltered. He declared that if the curette had never been invented, there would have been fewer deaths, most cases of sapremia recovering without operative intervention.

NEW YORK ACADEMY OF MEDICINE.

Section on Genito-urinary Diseases.

Stated Meeting, held February 17, 1904.

The President, James Pedersen, M.D., in the Chair.

Presentation of Pus-kidney and Ureter.—Dr. J. B. Bissell presented this specimen which was removed from a man, forty-four years of age, at St. Vincent's Hospital last December. The following history was given. He was a man of very intemperate habits and had been in the hospital two or three months previous for treatment of alcoholism. He had had repeated attacks of urethritis and, two years ago, was operated upon in Chicago for a very tight stricture of the deep urethra, perineal section and drainage being followed by a good result, but this was neglected, no sounds being passed or any after-treatment being followed. In the hospital he was turned over to the surgical side from the medical because of an attack of cystitis. Before coming in very small instruments could be passed. Under gas anesthesia a filiform went through and the urethra was dilated a slight amount. It bled a good deal and was hard to dilate. Temperature and pain suddenly developed and he was unable to sleep. The urine being filled with pus perineal section was performed and it was with difficulty that he was able to cut through the perineal floor because of the dense cicatricial tissue. At the end of two or three days after the operation the temperature rose to 103° F. and stayed there; there was severe pain over the abdomen, more especially about the umbilicus and in the region of the bladder. The high temperature and bad pulse continued. The urine contained albumin and all sorts of casts. There was no pain in the left kidney. The patient died and, as no autopsy was allowed, the specimen was obtained surreptitiously. The kidney was shown to be filled with pus, without any kidney tissue left except the capsule and some fibrous tissue dividing in a general way the pyramids. A large tumor was found between the bladder and rectum which ruptured under examination and from which came a great deal of pus. It was an abscess. Cutting off the ureter from the kidney two fingers could be introduced into the cavity of the ureter, which was about one inch in caliber; the tube ran down through the abscess cavity and then into the bladder and its potency had been occluded at its junction with the bladder by the pressure of this abscess.

Dr. George E. Brewer said he was reminded of a couple of similar cases seen last summer within one week of each other. One case had been treated for many months for malaria, the diagnosis being made because of a supposed enlarged spleen, chills every day, with temperature ranging from 100° to 105° F. and followed by sweating. The oval renal tumor on the left side was taken for an enlarged spleen. The blood count gave 30,000 leucocytes. A primary nephrectomy was performed. The kidney contained over 1½ pints of pus. Within one week of this he saw another case, one of puerperal infection. The trouble in the kidney was for a time overlooked. There was an acute sepsis, the symptoms somewhat resembling those of malaria. The renal tumor was about the size of an infant's head, was movable and very tender to pressure. The operation was a difficult one on account of the size of the

kidney and adhesions. It was incised and drained before it could be delivered. Both cases made satisfactory recoveries.

Dr. Edward L. Keyes, Jr., was reminded of a case quite the opposite from that referred to by Dr. Brewer. This patient had a very large kidney, which was not palpable, although it discharged a pint or more of thick pus in twenty-four hours. The patient was very stout, and this perhaps accounted for the fact that, although the loin was tender, no tumor could be felt. It is astonishing how large a tumor may exist in the loin and yet be impalpable.

Foreign Bodies in Perineum.—Dr. John F. Erdmann presented parts of two needles which he had removed from the perineum of a male about two weeks ago. The patient was thirty-two years of age and contracted gonorrhea from his wife. Three years ago he was operated upon for a deep stricture, the perineal operation being done. At that time he was told that a needle had been left in the wound. A year or so afterward, having an irritation in the urethra, he was cystoscoped and a large tumor of the bladder diagnosticated. A suprapubic operation was performed for purposes of exploration and nothing found. The wound was allowed to close. He was then treated for a profuse suppuration, pus passing by way of the meatus, and a fistula occurred in the center of the perineum. The pus was charged with gonococci and the fistula in the right buttock communicated with the urethral canal. The needle was supposed to have been left in the perineum. In passing a sound Dr. Erdmann felt it slip as if over the triangular ligament. Later he got a metallic grate and therefore did a perineal section. In trying to cut through the knife suddenly stopped, evidently having struck the needle. The parts were stretched and three small portions of the needle, broken during the attempt, were removed. While retracting the wound he found a large arc of steel minus the eye. Patient was doing well and was without further symptoms. Dr. Erdmann said it was strange to find parts of two needles which had been left in the wound at one operation.

Dr. Eugene Fuller said there had been a man in the City Hospital who had been operated upon four or five times in the attempt to close a spacious perineal fistula. He did a very extensive plastic operation and felt very proud because he closed the fistula. The man was quite comfortable for some time after, when frequency of urination developed. On making an examination a short time ago, he struck a large Hagedorn needle in the deep part of the urethra. It had evidently been broken off at some early operation. He tried to remove it through the urethra but could not and felt justified in temporarily leaving it, hoping it would work to the surface. He was averse to cut through the perineum, unless positively necessary, because the tissues were so badly nourished that he feared non-union of a fresh incision might result in the production of a fistulous tract.

Dr. Beck referred to Hyrtl's book on comparative anatomy, in which were shown foreign bodies, especially needles, in the perineum and bladder. He emphasized the importance of taking X-ray pictures in obscure cases; by so doing it was wonderful how often some unexpected information could be had by a study of the skiagraph. He could report many cases of this kind. In cases of calculi in the bladder, although the sound would reveal more than the X-ray in one way, still the latter gave excellent additional information regarding the size and number of stones in the bladder. He thought it would always pay the specialist to take skiagraphs.

Dermoid Cyst and Vesical Calculus.—Dr. Edward L. Keyes, Jr., presented these specimens. The patient was twenty-four years old and had suffered from various troubles for four years. Before this time she had some dysmenorrhea. The sickness began with an abscess said to be in the left ovary. Operation was suggested and refused, and the abscess burst into the intestine. She then suffered from alleged colitis and had many febrile attacks, sometimes called malaria and once attributed to typhoid. The malarial attacks lasted unduly long, while the typhoid was remarkably short. She then developed cystitis and, about a year ago, began to pass small stones from the bladder. These were said to come from the kidney; and when she exhibited two larger ones formed upon hairs, she was told that she had swallowed the hairs. This, in spite of the fact that examination revealed that every one of the many stones she had passed had a hair for nucleus. Last April litholapaxy was performed and the urethra stretched for digital examination. After the operation she was told that her stones were all gone, and when, ten days later, they again reappeared, she was informed that the urethra had been dilated in order to permit these stones to pass readily. She came into Dr. Keyes' hands last fall; and cystoscopy revealed two stones attached to the bladder above the right ureteral orifice. Laparotomy revealed a dermoid cyst absolutely incorporated in the pelvic wall by dense adhesions—the result of previous inflammation. The cyst could not be enucleated and so was opened. He shelled out the growth which presented. No attempt was made to close the openings into the bladder and the bowel. Drainage by a tube above and a permanent catheter below. Recovery was uneventful, except for a scare caused by the passage of three small stones three weeks after the operation. These had undoubtedly been overlooked at the time. She has passed no other stones in the twelve weeks since operation. Although she had passed gas from the bladder from time to time during the past year, the vesico-intestinal fistula closed at the end of three weeks; reopened for a week in January and has been closed ever since. She is now entirely well, except for the incontinence of urine which returned two weeks ago after a severe fall. This incontinence is apparently neurotic. Specimens of the cyst and of calculi dependent from hairs were shown.

Case of Hematuria.—Dr. Alfred T. Osgood reported this case for Dr. F. Tilden Brown, who was unable to be present. The patient was a man, seventy years old, whose father died of cancer of the tongue and his brother of pulmonary tuberculosis. There was no history of nephritis or of hemophilia in the family. The patient had not used alcohol for twenty years and had never had any venereal disease. Previous history was good. In 1898, for seven or eight months, he had attack of colicky pains localized in the bladder region, which was thought to be intestinal. No blood was noticed during this time in the urine. Never had pain referable to either loin, testis or thigh; no chills or fever. The following eight weeks he was without pain. Then, at urination, the stream suddenly stopped with a sharp cutting sensation in the urethra and a rough oval stone, the size of a lemon seed, was removed from the fossa navicularis. This occurred in 1899, and he was perfectly well until November, 1903, when he noticed blood in his urine which continued to be present for a week. Some of the time clots in the bladder made urination difficult. One week later, after heavy lifting, the hematuria recurred and with it some pain in the bladder region and the passage of clotted blood. After resting a week the bleeding ceased but recurred on further exertion. Since Christmas the hematuria

had been constant but the patient no longer had the pain behind the symphysis and had passed no clots. No signs or symptoms were present beyond the passing of bloody urine. Various diagnoses had been made by different doctors. He was first seen by Dr. Brown January 5, 1904. The urine was passed voluntarily and had the appearance of blood; on allowing it to settle it was found to contain one-tenth to one-fifteenth of red sediment made up only of blood cells, the leucocytes being in the proportion of normal blood. On January 16 cystoscopic examination showed a practically normal bladder and ureteral mouths. Blood issued from the right ureter. On January 22 both ureters were catheterized and the urines obtained were presented to the Section. The urine from the left ureter was normal except for a faint trace of albumin. That from the right ureter showed blood. The catheter was passed to the pelvis showing that the blood originated there. Forty to fifty ounces of urine were passed each day. Two or three radiographs revealed nothing. The case was presented really as one for diagnosis.

Dr. Carl Beck said that if the skiagraphic picture was good enough to show the spinal column, the twelfth rib and the psoas muscle, one might be able to exclude nephrolithiasis; but if it did not show these structures distinctly the skiagraph could not be relied upon for this purpose. The clinical history of cases had shown that many shadows had been misinterpreted; a negative skiagraph had been proven to be at fault and a positive shadow made later by other operators; therefore, the skiagraph could be relied upon only if it was perfect.

Dr. Eugene Fuller referred to a case where the diagnosis made from the clinical symptoms was probably stone in the kidney. A skiagraph was taken and showed nothing at all. The patient went to another city, another skiagraph was taken and stone was beautifully shown as being in the pelvis of the kidney; the stone was the size of a small marble and well defined. He believed that to get good result a number of pictures must be taken and in different places. In many cases of hematuria one may expose the kidney and even then be at a loss to account for the bleeding. Oftentimes in doing this and tearing the capsule somewhat the bleeding will afterward cease.

Dr. Charles H. Chetwood reported a similar case before the Section about a year ago. The history of hematuria was given without symptoms of nephralgia or colic. The cystoscope revealed that the blood came from one ureter, the jet from the opposite side being perfectly clear. No attempt was made to do a double ureteral catheterization on account of the clearness of the cystoscopic demonstration. The flank was opened and the kidney exposed. A search was made for stone, but none found. The capsule was then split and the pelvis of the kidney was then opened, and still there was nothing abnormal seen in the gross appearance. A catheter was passed down the ureter, but no occlusion detected. In one portion of the kidney there was a small area a little more dense than the surrounding structure, and a piece of this was removed for pathological examination. Previous to operation the urine had been examined, but absolutely nothing abnormal found, otherwise than the presence of blood. The piece of tissue removed, upon examination, showed evidences of parenchymatous nephritis. This case demonstrated the fact that one may meet a case of profuse hematuria referable to the kidney without there being any lesion demonstrable upon gross examination of the kidney or by laboratory analysis of the urine. One of the most important features of this case was that, after decapsulation of the kidney, the hemorrhage absolutely ceased and was seen for months afterward without showing any return of the blood in the urine.

Dr. J. B. Bissell believed that the diagnosis should be held in abeyance until incision was made into the kidney. Until that had been done we could only speculate regarding the cause of the hematuria.

Dr. James Pedersen said that he remembered hearing Dr. W. T. Bull remark that a papillomatous condition of the pelvis of the kidney could exist and give rise to hematuria without any other symptom.

Dr. Carl Beck said that the skiagraph was absolutely unreliable and would not show whether a stone was present or not. He could appreciate the difficulties in taking such skiagraphs. The chances of getting better skiagraphs were increased by compressing the abdomen and pushing in the tissues as much as possible by a diaphragm and taking two or more pictures.

Operative Surgery Applied to the Seminal Vesicles: A Demonstration of Some New Principles.—Dr. Eugene Fuller read this paper. He said the inaccessibility of the seminal vesicles was such as to prevent pathological conditions there from being recognized except by those who paid especial attention to this field. In his experimental work his aim had been to discover, first, the best operative method to expose the seminal vesicles and, second, the appropriate surgical treatment for the different types of disease. The chief features of the operative technic (read in Feb., 1901, and published in May, 1901) were the knee-chest position and the extent of the lateral incision which allowed a free dislocation upward of the rectum. Seminal vesiclotomy was the term applied to the new surgical procedure. He had 21 cases which were subdivided into five groups. Group 1 consisted of extremely chronic cases of seminal vesiculitis in which the lesions consisted chiefly of sclerosed tissue, not only the walls of the seminal vesicles but the surrounding fibrous tissues with the result that the cavities of the seminal vesicles were contracted and the sacs bound down by adhesions. Six of his cases were of this group, and in four his results were good, in two negative, as far as the removal of clinical symptoms were concerned. Group 2 consisted of cases of seminal vesiculitis less chronic than those of Group 1. The intravesical catarrh was still a prominent feature and there was no contraction of the sac cavities; in fact, in some there was an atonic distention of the sac cavities. Eight of his cases were of this group and three had been discharged in satisfactory condition and he expected they were cured by the operation. Of the remaining five good results positively followed in three; two cases were lost sight of. Group 3 consisted of cases of acute diffuse periseminal vesicle abscess with gonorrhea as the infective agent. All results were good in this class. In Group 4 the lesion was an adenoma which involved the wall of the seminal vesicle causing an obliteration of the sac cavity to a large degree. The result after removal was good. Group 5, the lesion was tuberculous involvement of the seminal vesicles and removal of the sac caused only temporary relief. A sinus persisted and the patient died through extension of the tuberculous process. Then followed a detailed recital of the cases. His results were such as to warrant him in advocating this treatment in many cases of Group 1, some in Group 2, and in all cases of Groups 3 and 4. In Group 5 nothing was gained by operation. For the liberation of pus in this region the operation under consideration he believed to be better than those in vogue, *i.e.*, perineal section, with a median incision through the trigonum; incision through the rectal wall; perineal incision through the prostate.

Dr. Chetwood has had no personal experience in

operating upon the seminal vesicles, and his knowledge of the subject was obtained largely from its literature. As a result of such reading, it seemed to him that one of the principal questions at issue was the route and technic to be selected, of which there were various modifications and, like operations upon the prostate, some adopted a supra and others an infra means of approach. The method of Drs. Duval and Daudet approached the seminal vesicle through the inguinal region and claimed to obtain by this technic a satisfactory view. With the purpose of enlarging the field in reaching the vesicles and adjacent organs, this operation was modified by Young, of Baltimore, who advises suprapubic cystotomy with a large incision augmented by a lateral one. The perineal operation, on the other hand, has been modified by the addition of a supplementary sacral flap, after Kraske and Schlange, as favored by Koenig and others. A casual observer would be inclined to believe that the perineal incision for approaching the vesicles is the one of choice for drainage purposes. In case, however, of extensive lesions, tuberculous or otherwise, it seemed as though it were necessary to perform one of the operations which enlarged the field of vision; such as that of Young by the suprapubic route, or the perineal operation supplemented by the sacral flap. Dr. Chetwood had experimented upon post-mortem subjects, and had found that Young's method gave an ample view of the parts. However, after hearing Dr. Fuller's array of successful cases, his method must be accepted as being satisfactory for a large proportion of cases; even though there was extensive involvement of the parts and a very radical operation was undertaken.

Dr. J. B. Bissell said that none of those present probably had had an opportunity to operate upon such cases and watch the results as Dr. Fuller had. He agreed entirely with what had been said regarding the non-operative interference with tuberculous disease of the genito-urinary organs, and particularly of the seminal vesicles. Such interference usually made the condition worse. He thought the method described in the paper to be a very satisfactory one but, like Dr. Chetwood, he had never performed that special operation. But, in order to reach the seminal vesicles satisfactorily he thought that of Zuckerkandl's incision and next that of Dr. Fuller's to be probably the most available. He said he was puzzled regarding the question of diagnosis and also the prognosis of disease of the seminal vesicles.

Dr. James Pedersen said he had had the opportunity of seeing Dr. Fuller operate on one or two of his cases and he could say that his method for reaching the seminal vesicles was a very good one, especially in Dr. Fuller's hands.

Dr. Eugene Fuller said that he hoped others would try to do work in this direction because there were many cases in need of relief to make them able-bodied floating around from one hospital to another, all of whom were ready and glad to be operated upon to get relief. He said he had been satisfied with the results he had obtained and felt that he had accomplished a great deal for this class of sufferers. His first five cases he had watched for over a year and then he made his preliminary report announcing the results. After getting evidences on the findings of these first five cases and finding them quite satisfactory he then started in to do more operative work of this nature. So far as the routes were concerned, most of them were too serious operatively to be thought of, the one through the bladder was not practical, as the seminal vesicles cannot be reached readily in that way. The operation of going through the abdomen and depressing the bladder was an awful operation, especially when done upon a tuberculous patient. The operation he advocated took less than fifteen minutes and none of his cases, now numbering 21, gave dangerous symptoms. The Kraske and Rydygier operations, cutting across the sacrum, were all capital operations and left the patients, as a rule, for a long time in a serious condition. It was usually six months or more before these patients were well. The incision he made was a freer one and he dislocated the rectum upward and out of the way. The diagnosis of these cases he said was usually made by rectal feel and required a well-trained sense of touch. With an educated finger one could readily map affairs out well, but it required practice. This tactile sense should be practised upon both normal as well as diseased conditions. Most people confounded prostatitis and seminal vesiculitis—two entirely separate affections. There was no surgical reason why patients should not get well after his operation of seminal vesicotomy any more than after cystotomy in certain cases of cystitis. The surgical principles which he had applied to the seminal vesicles were new only in so far as the seminal vesicles were concerned. In connection with the urinary bladder, the renal pelvis and the gall-bladder they had been long applied.

Dr. Carl Beck said that in the October meeting of this Section a case had been reported by Dr. Lilienthal with the title "Deformity of Penis Resulting from Operations for Relief of Hypospadias." According to this report it was said that "the first operation performed upon him was a Beck, and it appeared as if, when the urethra had been drawn through the anterior part of the glans and stitched there, it had sloughed, and as it descended it had seemed to have drawn with it a portion of the glans, etc." Dr. Beck had written Dr. Lilienthal before the last meeting and asked for a correction of this statement. In the article it was also written, "a deformity which had followed ten previous operations for the relief of hypospadias." "When first seen by Dr. Lilienthal the deformity was such that it was difficult to recognize the organ as a penis." Dr. Beck said he had not operated upon him ten times, but only four, and that the first operation was for a penile hypospadias of moderate degree. It is only in such cases that he advises his method of anterior dislocation, originally advised for the balanic type only. He does not advise it in the severe penile type, because the distensibility of the penis has its limits. He was afraid the usefulness of the operation had been much impaired through this report in the Medical News (December 5, 1903). The truth of the matter was that after having operated upon this patient at St. Mark's Hospital the patient the next morning took a pocket knife and cut off the catheter in the urethra and therefore caused a failure. Another plan of operation was now considered. Although the patient was circumcised and had only a small portion of a prepuce left, Dr. Beck dissected through, turned it back and implanted it in such a way that it could be used later for the formation of a new urethra. After the bridge was dissected and a flap from the scrotum formed, in order to cover the new urethral canal, the patient insisted upon leaving the hospital. The patient signed a paper stating that he knew that he would injure himself by getting up and left the institution against the doctor's advice. In the article mentioned it was stated that "When Dr. Lilienthal first saw him, a portion of the glans appeared as an isolated fragment, entirely separated from the glans penis." Dr. Beck said this fragment was the carefully transplanted remnant of the prepuce. While Dr. Beck fully realized that failures are possible in the hands of even the best experts, in this patient the fault was not the method but the extreme nervous condition of the patient.

BOOK REVIEWS.

Biographic Clinics. Vol. II. By George M. Gould, M.D. P. Blakiston's Son & Co., Philadelphia.

There are few literary diversions more interesting and innocent than trailing an idea through one's favorite authors with a pencil. One can underline all passages bearing on one's subject, ignoring those that upset one's theories, jot the page number of the selections on a blank page, and transfer them at leisure to a large notebook. After several years of this pleasurable pastime one will have material enough to make an original book of one's own, which, if one should be fortunate enough to excite the animosity of critics, one might sell with some profit, and much éclat.

We have ourselves read somewhat with the idea of collecting material to show that heroines with red hair are possessed of indomitable wills and great energy of character inherited from a remote but famous ancestor; but we doubt whether we could bring out anything so convincing as the "Strange Mystery of the Disease of Fourteen," which Dr. George M. Gould has evolved from his extensive biographical reading. In his second volume of Biographic Clinics, the Fourteen are sons and daughters of genius, that lived in the last century, and have illumed literature, but who, it seems, all unknowingly lived martyr's lives due to eye strain. The continued excerpts from George Eliot's familiar letters, "very irritated to-day," "terrible headache," are repeated in the quotations of the letters of Carlyle and his wife, Darwin, Nietzsche, Wagner, Spencer and the rest, all of whom foolishly attributed their suffering to tire of city life, care, work, indigestion, and who took the advice of the very famous, but misinformed physicians who attended them, to go to Italy, or the country, or the Highlands.

We remember, from the casual reading of our own unnoted copies of their biographies, that this change frequently benefited them, that De Quincey and Browning were in good form when they walked and walked; but we see now that it was a "pitiful waste of time" for, as Dr. Gould points out, "fully three-fourths of Carlyle's working time and ability were spent in horse-back riding, walking, and in recovering from the exhaustion of writing," while "much of Mrs. Carlyle's life was spent in thirty to sixty hour continuous vomiting," although another excerpt says that for ten years she walked six to ten miles a day, and Darwin spent hours "walking like a dumb animal about his sand-walk, or more foolishly enduring the brutal water-cure." What would not their literary output have been had their physician fitted them with spectacles, so that they could have done a full day's work.

But Dr. Gould calls our attention to the fact that most of the fourteen affected to scorn spectacles, and had they been willing to wear them they could not have obtained scientifically correct ones. And this is the strong point. The neurologists and ophthalmologists do not know their business. They will persist in attributing to hereditary, and brain work, and lack of fresh air, millions of cases of migraine and neurasthenia that ought to be called "eye strain," and when they do suggest spectacles they only aggravate the trouble by prescribing wrong ones.

Dr. Gould expected that when he pointed out in his first volume the enormity of the mistake of the medical profession in ignoring this truth, that the ophthalmologists, at least would be grateful to him; but the levity of some and the bitterness of others has naturally hurt his feelings, although he takes pains to state that he is "neither discouraged nor scornful."

Even when a "great and famous ophthalmic surgeon," to quote his own words, "told him that he had examined large numbers of patients who complained of the same troubles as Darwin, Wagner, Parkman and the rest, and found that they had no optical defects whatever," yet Dr. Gould was patient with him, and only told him, to quote again, "that all history is full of instances of the failure of the official leaders or representatives of religious art and science to recognize the new truth which finally supplanted the pitiable truth they stood for."

With a view to convincing his fellow practitioners that millions of patients are suffering from eye strain, and that they are merely encouraging quacks, by seeking other causes of difficulty Dr. Gould cites "sixty-eight reasons why 'glasses did not give relief.'" Among others relating to a knowledge of refraction in which it appears that oculists and opticians are equally wanting, he states that (6) the oculist may not be morally right-minded in carrying on his work; (7) he may not be intellectually fitted or capable of doing this particular kind of work; (8) he may not be sufficiently painstaking in attention to mathematic accuracy and the slightest details.

We call the attention of the distinguished oculists of the country to these and the remaining 65 reasons, for it may be that they are ignorantly caring for some genius, and it might in the end be written of their patients, as Dr. Gould has done of the famous pair: "Eye strain made George Eliot and Henry Lewes great sufferers, compelled them to waste much of their lives in walking, and killed them at the early age of 61 years."

Disinfection and the Preservation of Food. By Samuel Rideal, D.Sc., Lecturer on Chemistry in St. George's Hospital Medical School. John Wiley & Sons, New York.

This is an extensive volume of nearly 500 pages, devoted exclusively to the methods of disinfection and preservation of food.

It is of interest in the first place to the large number of manufacturers who put up preserved foods, and it is moreover of vital importance to those who have to deal with the testing of preserved foods.

To army physicians, to the medical man in localities where fresh food is difficult to obtain, such a work is indispensable.

We can recommend it most heartily to sanitarians and practitioners alike. It is largely devoted to technical features and methods, but it will undoubtedly be found useful in the camp, hotel, and field, as well as in the porkpacker's establishment.

A Manual of the Practice of Medicine. By A. A. Stevens, A.M., M.D. Sixth edition. Thoroughly revised. W. B. Saunders & Co., Philadelphia, New York and London.

Dr. Stevens' Manual of the Practice of Medicine is so well and favorably known that it needs no commendation of ours. It is really a very marvelous condensation of the absolutely necessary in medicine. It is no wonder that it is in its sixth edition in ten years. In this edition the entire section on diseases of the digestive system has been rewritten as well as individual articles in other parts of the book. Like most of the manuals for students Dr. Stevens' little book of 550 pages may well prove a faithful companion throughout life to the practitioner, who, especially in its flexible cover, can readily carry it with him and find valuable hints and practical suggestions even at the bedside itself. There is many a large text-book of medicine that is not as satisfactory a guide to the practitioner.

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